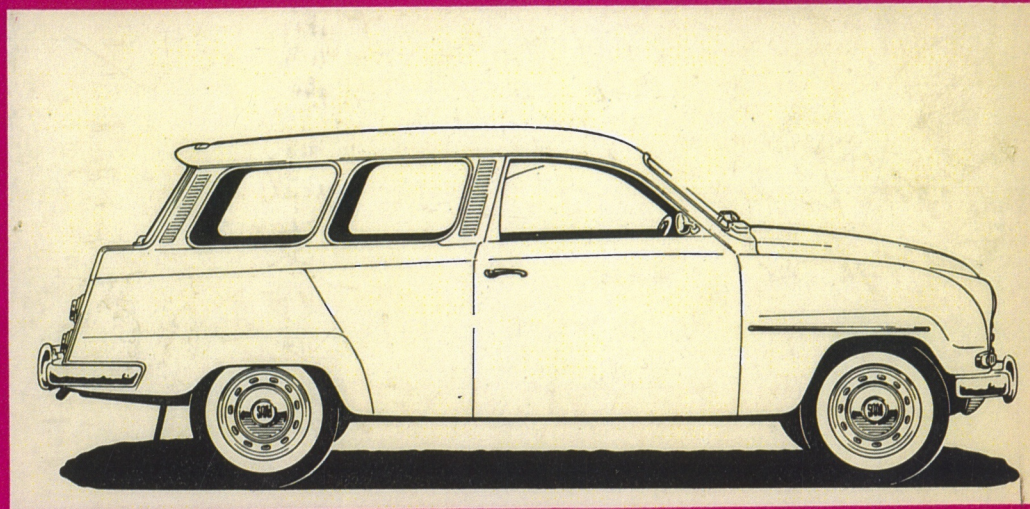


SAAB95



Owner's Manual

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SAAB 95

Owner's Manual



SVENSKA AEROPLAN AKTIEBOLAGET
TROLLHÄTTAN • SWEDEN

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Enbart för spridning utomlands

Foreword

Dear Saab 95 B Owner,

We take pleasure in presenting you with this instruction manual for your car. We recommend this book to your close study; it is one of the most important accessories of the car and should not be left lying in a drawer. It contains the information you need to get acquainted with your car and its features. As regards the details given about the equipment of the vehicle, we must reserve the right to introduce modifications to later cars in the current series.

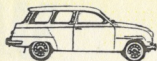
The Saab 95 B is a quality product built to satisfy exacting demands as to robustness, performance and driving characteristics.

But no vehicle, however well designed and built, can give of its best unless it is properly driven and looked after. Incorrect driving technique and inadequate maintenance reduce the roadworthiness of the car and shortens its working life. Particularly when your car is new, it needs regular servicing by experts. This is provided free of charge according to the schedule in the service book which accompanies the car.

It is most important that certain types of servicing described in this book are carried out correctly. They should therefore be done at an approved SAAB garage, unless you are absolutely sure that you can manage them yourself.

We know that the recommendations and instructions given in these pages will help you to get the best out of your car, and are confident that your Saab 95 B will give you the service and pleasure you have a right to expect of it.

Yours truly,
SVENSKA AEROPLAN AKTIEBOLAGET
Trollhättan, September 1963



Introducing the SAAB AIRCRAFT COMPANY

Formed originally in 1937 to manufacture aircraft, the SAAB Aircraft Company has also become a major producer of automobiles since World War II.

SAAB began automobile production in 1949—50 with a four-passenger two-cylinder car — the Saab 92 — which rapidly gained popularity for its sturdy design, excellent economy and outstanding driving characteristics. In 1956 the Saab 92 was replaced in production by a new model, the three-cylinder Saab 93, which quickly became a real best-seller, not only in the highly competitive Swedish market, but also in the export markets. Its outstanding qualities have been proved by overall victories in several international car rallies, including the 4th Annual Great American Mountain Rally in 1956. The Saab 93 also won the European Rally Championship in 1957 and 1959.

In 1959 a station wagon, the Saab 95, appeared on the market and the spring of 1960 a new standard model the Saab 96 was introduced. Featuring numerous improvements the Saab 96 represents the greatest change that the Saab car has undergone since the 93 model was introduced. The most noticeable change is the completely new rear end with the much larger rear window.

The Saab 96 has become extremely successful not only in sales but also in international rally competitions. Recent victories include overall wins in the Monte Carlo Rally 1962 and 1963 and overall wins in the International British RAC rally 1960, 1961 and 1962.

The SAAB Aircraft Company is today the largest privately-owned aircraft manufacturer on the European continent, employing in its own factories more than 12,000

people. It supplies most of the aircraft used by the Swedish Air Force, and is well known in international aviation circles for the modernity of its aircraft. In 1951, SAAB started delivering the Saab 29, the first swept-wing jet fighter in service in Western Europe. The company has also supplied the Swedish Air Force with large numbers of the Saab 32 "Lansen", a two-seat radar-equipped all-weather attack, fighter and reconnaissance aircraft, the first Swedish aircraft to attain supersonic diving speed. Another well-known aircraft is the Saab 91 Safir, which is being used in many countries for the training of military and commercial pilots.

Late in 1955 another SAAB combat aircraft made its first flight, the spectacular Saab 35 "Draken", single-seat, all-weather fighter. Featuring a special type of delta wing called the "double delta", developed exclusively in Sweden, the Saab 35 has a top speed of more than twice the speed of sound and a phenomenal rate of climb. This highly advanced fighter is now the mainstay of the Swedish Air Force. The latest Draken version includes air-to-air guided missiles also produced by SAAB.

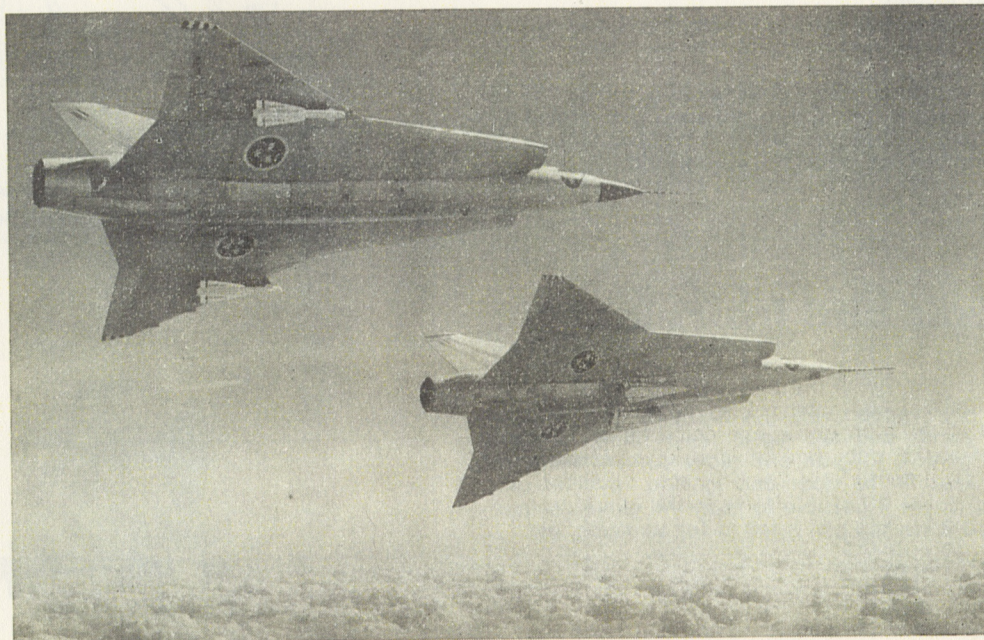
Now under development for the Air Force is a new manned weapon system based on the Saab 37 multi-mission combat aircraft. The largest project undertaken by the Swedish aircraft industry, SYSTEM 37 will keep more than 10,000 people engaged for many years. SYSTEM 37, for which SAAB is prime contractor, also includes SAAB-developed guided missiles.

SAAB has also developed and test flown a new twin-jet-trainer and light attack aircraft, the Saab 105.

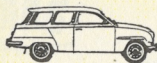
In recent years, the company has also become an important manufacturer of electronic equipment both for military and civil purposes. In the civil field, SAAB is successfully marketing a compact transistorized general computer, the D 21.

SAAB today operates four major plants in addition to a number of smaller factories. The main plant and the center of weapon systems development and production is at Linköping. The three other major plants are situated

at Trollhättan (motor-cars and jet engine parts), Gothenburg (motor-car power units etc.) and Jönköping (aircraft and missile equipment etc.). A helicopter division is situated at Norrköping.



The Saab 35 Draken is one of the world's most modern interceptor fighters. Top speed exceeds 1,200 m.p.h.



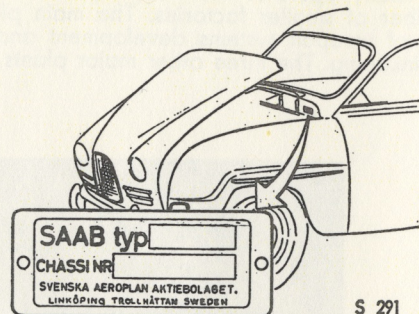
Presentation

The Saab 95 B is a combination light station wagon and family car with two doors and front wheel drive; its design is based largely on the systems and components used in other Saab models.

Power is supplied by a three-cylinder, liquid-cooled, two-stroke engine, which is lubricated by oil mixed with the fuel.

The car is equipped with a four-speed gearbox and has spiral spring suspension front and rear. The brakes are hydraulic and are provided with two independent circuits. The electrical system works at twelve volts.

Protection against theft is afforded by a gear lever lock.



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Figure 1. Location of chassis number

The chassis number is also die-stamped on the left hand side of the cross-beam underneath the front edge of the back seat.

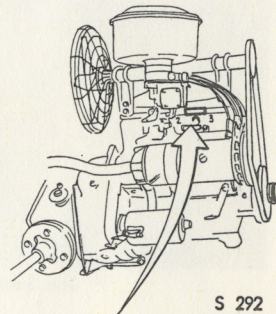
Controls and Instruments

Keys

Four keys are supplied with the car. Two of these have octagonal heads and are master keys fitting all locks, i. e. door, ignition, tailgate and glove compartment. The other two keys fit the door and ignition keyholes only. This system makes it possible to keep the glove compartment locked when the car is left in for servicing, etc.

Locks

To lock the door, give the key a quarter turn counter-clockwise, turn it back to the insert position and then take it out. The door is then locked.



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Figure 2. Location of engine number

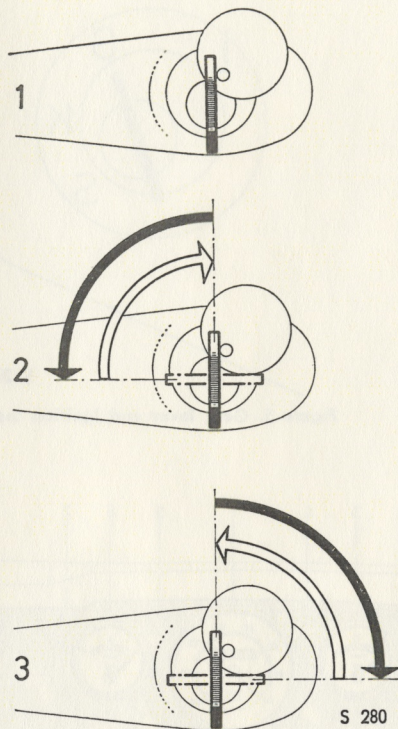


Figure 3. Door lock

1. Insert position. 2. Lock. 3. Unlock.

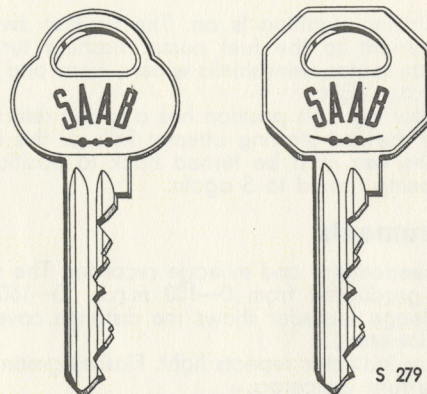


Figure 4. Keys

To unlock the door, give the key a quarter turn clockwise, turn it back to the insert position and take it out. The door is then unlocked.

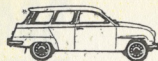
The tailgate is locked and unlocked in the same manner. To open the tailgate, turn the handle to the right.

To lock the glove compartment, turn the key to the left.

To open the glove compartment door, press the button.

The gear lever lock comes into operation when the reverse gear is engaged and the key is removed. The gear lever and ignition lock has the following positions, (see Figure 5):

- L. Locked. The key can be removed when reverse gear is engaged. The key can only be taken out when the lever is in this position.
- G. Garage. All current switched off.



- K. Driving. Ignition is on. The ignition switch supplies current to the fuel pump, flashing turn indicators, fan motor, windshield wipers, horn and charge indicator light.
- S. Starting. This position has a spring return action. If the first starting attempt fails or the engine stalls, the key must be turned back to position G before being turned to S again.

Instruments

1. Speedometer and mileage recorder. The speedometer is graduated from 0—100 m.p.h. (0—160 km/h). The mileage recorder shows the distance covered in miles (kilometers).
2. Turn indicator repeats light. Flashes green in time with the turn indicators.
3. Fuel gauge. The amount of fuel in the tank is shown when the ignition is switched on. An indicator light glows red when there is less than 2 US gals. (7 lit.) left.
4. High beam indicator light. Shows a red (or blue) light when the headlamps are on with the beam undipped.
5. Charge indicator light. Glows orange when the generator is not charging — normal when engine is idling.
6. Coolant thermometer. The green zone indicates normal operating temperature.
7. Electric clock with setting screw. The regulating screw is at the back of the clock.

Other controls and fittings

1. Choke. For details of operation, see "Choke", page 11.
2. Air heater control, see Optional Extras, page 47.
3. Ventilator fan switch, see Figure 40.
4. Rheostat for intensity of instrument panel lighting when lights (see 6 below) are on.

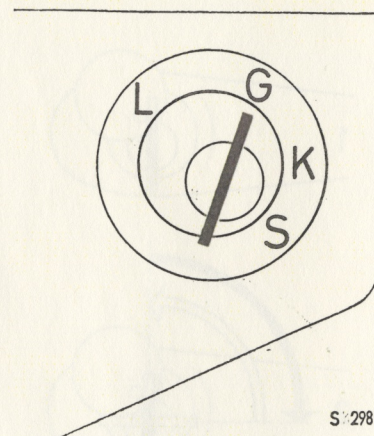


Figure 5. Gear lever and ignition lock

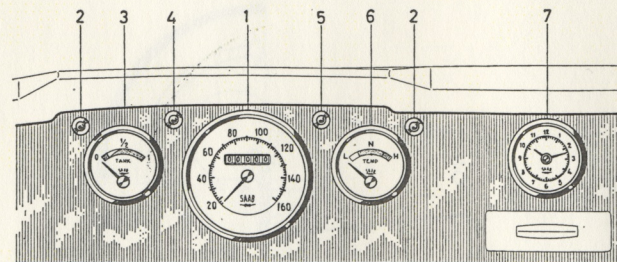


Figure 6. Instruments

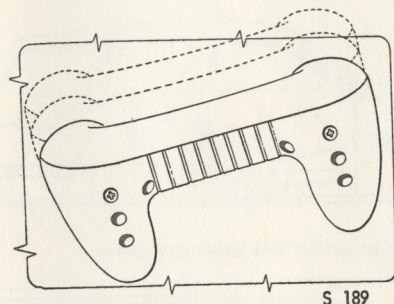


Figure 7. Arm rest

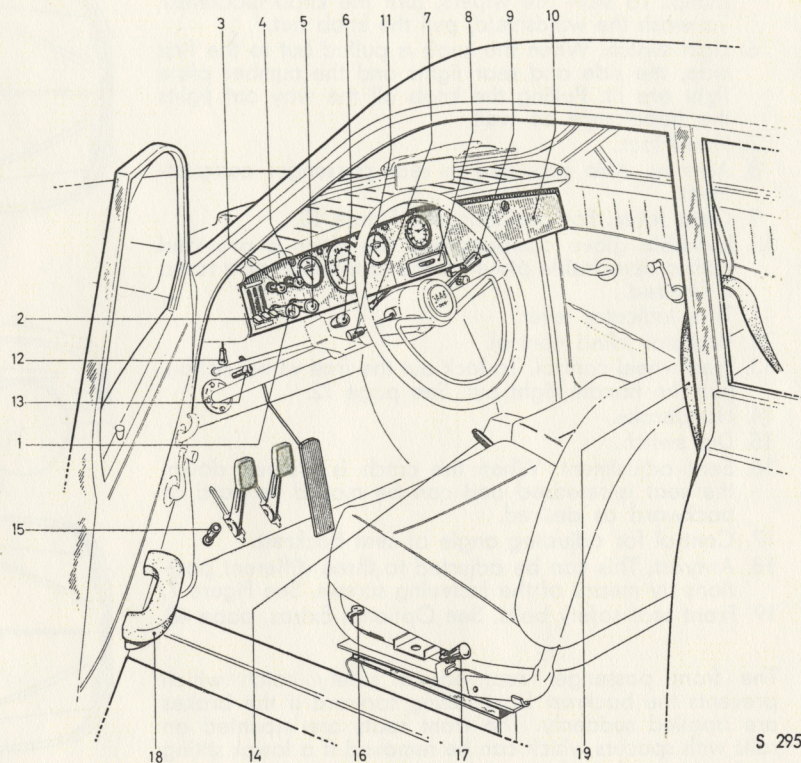
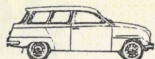


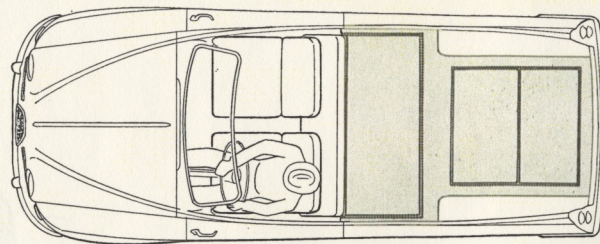
Figure 8. Controls



5. Windshield wiper switch and windshield washer pump. To start the wipers, turn the knob clockwise. To wash the windshield, pull the knob out.
6. Light switch. When the knob is pulled out to the first stop, the side and rear lights and the number plate light are lit. Pulling the knob all the way out lights the headlamps as well.
7. Hood lock.
8. Ashtray. Also provided in rear passenger compartment.
9. Gear lever. For positions, see Figure 10.
10. Lockable glove compartment. The door is provided with a detachable plate for the installation of a radio if desired.
11. Turn indicator lever.
12. Radiator blind control.
13. Free wheel control. To lock out the free wheel action, pull the handle right out. See page 12.
14. Handbrake.
15. Dip switch.
16. Seat adjustment. When the catch is pressed down, the seat is released and can be moved forward or backward as desired.
17. Control for adjusting angle of seat backrest.
18. Armrest. This can be adjusted to three different positions by means of the fastening screws. See Figure 7.
19. Front seat safety belts. See Optional Extras, page 48.

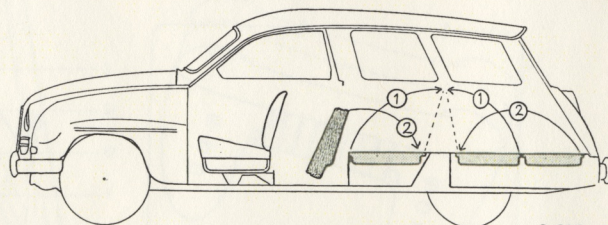
The front passenger seat has a safety catch which prevents the backrest from falling forward if the brakes are applied suddenly. The front seats are mounted on rails with spacers which can be removed if a lower sitting position is preferred.

The method of converting from passenger accommodation to freight space and vice versa is shown in Figure 9.



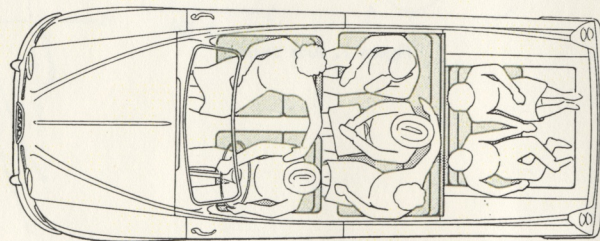
a. Maximum freight space

S 316



b. Conversion into passenger seats

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c. Accommodation for seven persons.

S 318

Figure 9. Freight space and passenger accommodation

Running Instructions

General

Every type of car has its own special characteristics and even cars of the same make and type may show considerable individual variations according to their mechanical condition. Wheel alignment, steering mechanism, brakes, tires, shock absorbers, etc., should therefore always be kept well trimmed and in good condition if the vehicle is to perform in the manner intended by its design.

There are, however, a number of other significant factors which come into play here, such as load distribution, the state of the road, and the driver.

The following instructions have thus been compiled solely with reference to the actual mechanical construction of the car.

Starting the engine

Choke

To facilitate starting in cold weather, the carburetor is equipped with a cold start mechanism, or choke. When the control knob is pulled out, the engine is supplied with a richer fuel mixture than the normal.

The choke has two positions. To start the car when the engine is cold, pull out the knob to the intermediate position or, in very cold weather, all the way out. It can be left in the intermediate position while the engine is warming up, but as soon as the engine will run on normal mixture, the choke knob should be pushed right in.

Starting with cold engine

1. Gear lever in neutral.
2. Clutch out.
3. Pull out the choke knob half way (in severe frost conditions all the way).

4. Turn the ignition key to S. If the first attempt fails, the key must be turned back to position G before being turned to S again.
 5. Ignition key to K and choke to half way position as soon as the engine fires.
 6. Release the clutch.
 7. Push the choke knob right in as soon as the engine has warmed up enough to run on normal fuel mixture.
- NOTE: Warm the engine by driving the car, not by idling at the curb.

Note

If the choke knob is pulled out, the accelerator pedal should not be operated when the engine is being started since this puts the choke mechanism partly out of action.

Push the choke knob right in as soon as possible.

If the engine is stopped and the car left out of doors in severe wintry weather, the following procedure will facilitate subsequent starting:

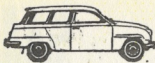
1. Depress the accelerator slightly.
 2. Pull out the choke knob.
 3. Switch off the ignition and release the accelerator.
- In exceptionally cold weather it may be advisable to store the battery indoors, e. g. if the car is to be left out overnight. If this is done, care should be taken to avoid spilling acid from the battery.

Starting with warm engine

1. Gear lever in neutral.
2. Turn ignition key to S.
3. Release the key and let it spring back to K as soon as the engine fires.

If the engine fails to start, this may be because it has been flooded with fuel. Depress the accelerator about a quarter of an inch and hold it steady while the starter motor turns over.

Never use the choke when the engine is warm.



Gear changing

When changing gear, let in the clutch gently and smoothly. There are only two correct positions for the clutch pedal when under way, either fully depressed (clutch out) or fully released (clutch in). Make a practice of always taking the foot off the clutch pedal when it is not being used. Driving with a slipping clutch or with the foot resting on the pedal is a bad habit and causes heavy wear on the clutch plates and bearings. If the car is stationary, put the gear lever in neutral and release the clutch.

All four forward gears have synchromesh. To put the engine in reverse, move the lever to the top of its travel in neutral to position ⊙ (Figure 10) and pull it out away from the steering wheel. Then engage reverse gear by pulling the lever backwards and downwards. The positions of the different gears are shown in Figure 10.

The synchromesh makes gear changing very easy. Thus it is possible to change down without using the clutch if the free wheel is in operation. All gear changes should however be made with a smooth, precise touch and with a slight, barely perceptible pause in neutral.

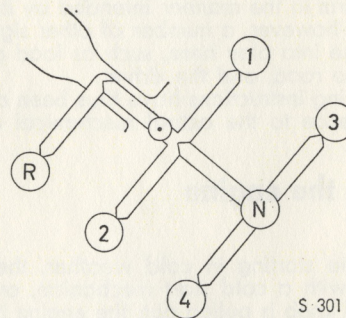
Free wheel

The gearbox is equipped with a free wheel on the input shaft. The free wheel has a locking mechanism by means of which it can be cut out (locked). This mechanism is operated from the driver's seat by a handle above the brake pedal, see Figure 11.

Handle pushed in = free wheel operating.

Handle pulled out = free wheel locked.

The free wheel can be locked more easily if the car is stopped before the handle is pulled out.



S 301

Figure 10. Gear positions

R=Reverse

N=Neutral

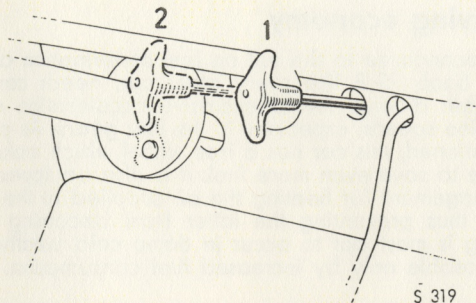


Figure 11. Free wheel control
1. Free wheel in operation. 2. Free wheel locked.

Drive as much as possible with the free wheel in operation; the engine then has no braking effect when the accelerator is released, and the car can maintain its speed for a while with the engine idling. This cuts down fuel consumption and engine wear. It also makes gear changing easier and makes for smooth, even running. Use the free wheel on the level as well as downhill. The only times when the free wheel must be locked are if for some reason it is necessary to start the engine, e.g. by a tow, or if it is desired to utilise the braking action of the engine when going down steep mountain gradients in order to save undue heavy wear on the ordinary brake system. See Brakes.

Brakes

On delivery the car is fitted with thoroughly tested brake linings with very little tendency to fade, i.e. they tolerate

high temperatures without any serious loss of effect. When changing brake linings, therefore, check that the replacements fitted are original SAAB components or of a make and type **recommended** by SAAB.

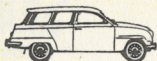
No brakes, however, will stand up to excessively high temperatures. Therefore, when driving downhill in mountainous country with descents of hundreds or thousands of feet, lock the free wheel to get the benefit of the braking capacity of the engine. In high gear the braking effect is small, so that second gear should normally be used for braking or, on extremely steep stretches, first gear. In such cases the following speeds must not be exceeded: third gear 45 m.p.h. (75 km/h), second gear 30 m.p.h. (45 km/h) and first gear 15 m.p.h. (25 km/h).

Steering characteristics

The Saab 95 B has a tendency to understeer, i.e. at a given wheel angle the turning radius tends to increase with rising speed. This feature is designed into the car to give it stability and cut down the risk of rear wheel skidding. However, should the rear wheels skid as a result of a violent maneuver, the understeer makes it very easy to check the skid.

When loaded however, the tendency to understeer diminishes, and if there is a very heavy load at the rear there may be some tendency to oversteer. Loads should therefore be stowed with their center of gravity as far forward in the vehicle as possible.

The fact that the Saab 95 B has front wheel drive helps it remain stable on slippery surfaces even when the accelerator is operated jerkily. In similar conditions a car with drive to the rear wheels tends to gyrate.



Running-in

The Saab 95 B has excellent road holding qualities. However, even a skilled driver needs a certain time to get really acquainted with a new car. It is therefore advisable to exercise care at first in order to become gradually familiar with the car and also because it should not be pushed to capacity the first 2,000 miles (3,000 km).

Every new car requires a certain running-in period during which it should be driven with care. Pistons, cylinder bores and bearings need to be in operation for some time to produce smooth and hard-wearing surfaces. Placing too much strain on a new engine impedes this gradual bedding down process and is likely to shorten its working life.

During the running-in period, which covers the first 2,000 miles (3,000 km), avoid driving at too high engine speeds. This, however, does not mean that the engine, e.g. on uphill gradients, should be allowed to labor before changing down. Drive so that the engine speed is high enough for it to run without strain.

Recommended running-in speeds

1st gear: 0—15 m.p.h. (0—20 km/h)

2nd gear: 5—25 m.p.h. (10—40 km/h)

3rd gear: 15—40 m.p.h. (25—65 km/h)

4th gear: 30—50 m.p.h. (55—80 km/h)

Avoid giving full throttle during the first 2,000 miles (3,000 km) and remember that the fuel should contain 4 % oil during this running-in period.

Driving economy

To economize to the full on fuel consumption and wear, the Saab 95 B like every other car, needs careful and smooth driving. Avoid excessive acceleration and high engine speeds, especially in the low gears. As previously mentioned, this car has a free wheel which makes it possible to save even more fuel. It is also equipped with an arrangement for heating the air supplied to the carburetor, thus preventing the latter from becoming iced up. Icing is most apt to occur in damp cold weather and is noticeable only by increased fuel consumption.

Driving on slippery roads

When the roads are slippery or likely to be so, it is more important than ever to keep the car in perfect trim. The brakes and tires in particular must be in good condition to ensure even braking. The driver who feels that he can control his car better by using engine braking can do so by cutting out the free wheel. There is no general rule about which alternative is preferable, so each driver is free to decide which method suits him best.

Whether or not the free wheel is cut out, the most important thing in driving on slippery roads is to be able to stop with the ordinary braking system. However icy the road may be, engine braking cannot bring the car to a standstill in a shorter distance than the regular brakes properly used.

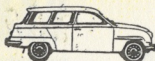
On slippery roads the car is much more apt to skid than at other times. The general rule for a tail skid is to gun the engine and steer in the same direction as the tail is sliding. If the front wheels skid, ease up on the accelerator until the grip on the road and thus steering control is regained, after which the throttle can again be opened cautiously. In slippery conditions all pedal movements should be made with more than usual care.

As soon as the winter season begins, take the opportunity to practise cornering and braking on a slippery surface in some open area away from traffic. If a situation should arise where the car goes into a skid, it is more important than ever to be thoroughly familiar with the characteristics and behavior of the vehicle.

Useful hints

1. Be sure that the ignition is switched off when the engine is not running; otherwise the crankcase may be flooded with fuel if the carburetor needle valve should be leaking. The ignition coil and breaker points are also liable to be damaged.
2. Learn the quickest way to start the engine. If it turns over too long without firing, it will become flooded and even more difficult to start.
3. Drive in high gear whenever possible without straining the engine at low speeds, and do not gun the engine too much when driving in 1st, 2nd or reverse gear.

4. Make use of the free wheel by taking your foot **right off** the accelerator when the car can maintain speed on the overrun, not only downhill but also on the flat. On thruways and other roads where high speeds are possible, the accelerator pedal should be completely released from time to time; this makes use of the free wheel by letting the car run on with the motor idling. Such a technique involves very little loss of speed but spares the engine and reduces fuel consumption.
 5. Do not interfere with the carburetor jet settings. Any necessary adjustment or trimming must be done by qualified mechanics.
 6. Keep the battery well charged at all times. A poorly charged battery cannot start the engine quickly enough.
 7. In wintertime steps should be taken to prevent ice from forming in the cylinders of the door and tailgate locks. Most service stations carry preparations suitable for this purpose. However, should a lock cylinder be frozen stuck, care must be taken not to break the key — melt the ice by warming the lock in some way.
 8. The running temperature of the engine should be kept at about 85°C (185°F), i. e. with the needle in the center of the green zone on the dial. Do not forget to close the two vents in the wheel housings when the cold season begins.
 9. The engine must be kept in good trim; it will normally need decarbonizing after about 19,000 miles (30,000 km). Carbon deposits in the combustion chambers, ducts and exhaust pipe increase the exhaust resistance and impair the efficiency and economy of the engine. Carbonization can be kept down if slow driving in high gear is avoided and good quality oil and gasoline are used.
- Decarbonization and other major maintenance work should be carried out at an approved SAAB garage.



Maintenance

Fuel

Three per cent oil should be mixed with the fuel, i.e. one part in 33. During the running in period, the proportion of oil should be 4 % (1:25). If self-mixing two-stroke oil is used, the required proportion is 4 % (during running-in 5 %).

As far as possible, **two-stroke oil** should be used, in which case the higher proportions needed with self-mixing two-stroke oils mentioned above should be borne in mind. If two-stroke oil is not available, ordinary four-stroke oils of Premium and high detergency types (ML, MM and MS according to the new API system) may be used, provided that the viscosity is at least SAE 30.

The fuel tank has a built-in mixer for oil. When refueling, pour in the oil first and then the gasoline. At temperatures below -5°C (23°F), however, the mixer does not work satisfactorily, so that in sub-freezing weather the oil should be diluted with an equal amount of gasoline before being poured into the tank.

Regular grade gasoline, 85 octane or over, is recommended for the Saab 95 B. Premium grade can be used without trouble, but there is little advantage in doing so. Avoid fuels containing alcohol and benzole additives, which in certain combinations with oil may actually damage the engine.

Cooling system

Inspect regularly to see that the cooling system is full of water. If water is to be added, make sure that it is absolutely clean. Never add too much cold water when the engine is warm, as this may crack the cylinder block. In winter, anti-freeze should be used. See table, page 29.

Mixing Tables, Gasoline/Oil

4 % (1:25)*

gasoline liters	oil liters	gasoline gals.	oil quart	oil pints
5	0.2	1		$\frac{1}{3}$
10	0.4	2		$\frac{2}{3}$
15	0.6	3		1
20	0.8	4		$1\frac{1}{3}$
25	1.0	5		$1\frac{2}{3}$
30	1.2	6	1	
		7		$2\frac{1}{3}$
		8		$2\frac{2}{3}$

3 % (1:33)

gasoline liters	oil liters	gasoline gals.	oil quart	oil pints
11—13	0.4	1		$\frac{1}{4}$
14—16	0.5	2		$\frac{1}{2}$
17—19	0.6	3		$\frac{3}{4}$
20—24	0.7	4		1
25—29	0.8	5		$1\frac{1}{4}$
30—35	1.0	6		$1\frac{1}{2}$
		7		$1\frac{3}{4}$
		8	1	

* during running-in

Battery

Check the electrolyte level in the battery every week and top up with distilled water as necessary. Battery terminals should be cleaned regularly and coated with vaseline to prevent corrosion.

Tire pressure

Tire pressures (see table below) should be checked once a week with a reliable pressure gauge.

Overinflated tires not only give a very hard ride but also cause excessive wear on the middle of the tread. Underinflated tires cause wear mainly on the outer edges of the tread. They impair roadholding by causing sway on cornering.

Tires inflated to correct pressure grip with the entire tread surface, ensuring even wear and good roadholding.

Inflation pressure	Front	Rear
Light load	24 lbs/sq. in (1.7 kp/cm ²)	24 lbs/sq. in (1.7 kp/cm ²)
Full load	25 lbs/sq. in (1.8 kp/cm ²)	28 lbs/sq. in (2.0 kp/cm ²)

Lubrication Instructions

General

Proper lubrication is essential to good maintenance. It is much cheaper to lubricate the car regularly with high-quality lubricants than to pay for damage caused by neglecting the lubrication instructions.

The Lubrication Chart and Figure 12 on the following pages show the lubrication points on the Saab 95 B, and indicate proper lubricants to be used, lubrication intervals as well as application methods. For the best possible cold-weather operation, the steering gear should be lubricated only with non-freezing grease.

Door hinges may be oiled by applying an oil can to the holes in the rubber plugs, which can be seen when the doors are fully opened.

Check the oil level in the gearbox every 3,000 miles (5,000 km) by unscrewing the oil level plug 2 (see Figure 24) and inserting the dip-stick into the opening. The oil level beneath the opening should never be lower than about 5 mm (1/4 in.). Gearbox oil may be added as needed, but never mix two different kinds of oil in the gearbox.

Gearbox oil should first be changed when the car has been driven 600—900 miles (1,000—1,500 km) and every 9,000 miles (15,000 km) thereafter — or every spring and fall. The car should be driven for 15—20 minutes before the old oil is drained, after which the gearbox should be cleaned with detergent oil. Add about 1.4 lit. (3 US pints) of oil, or until it runs out through the oil level plug opening.

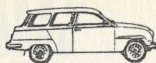
EP SAE 80 oil may be used in the gearbox throughout the year.

Storage

If the car is to be laid up for a long period (during the winter, for example) it should first be thoroughly lubricated. To prevent rust and similar corrosion damage, the engine should be "preserved" in the following manner:

1. Remove air filter lid and element.
2. Start the engine and run at a rather high speed (3,000—3,500 rpm).
3. Pour a rust preventative oil of suitable type or two-stroke oil slowly into the air inlet and let the engine suck in oil until it stalls. Some 200 ml (about 1/2 US pint) of oil will be needed. Be sure to keep the accelerator in the same position until the motor stops.
4. Turn off the ignition and re-assemble the air filter. If necessary, the radiator may be drained. The battery should also be removed and kept at room temperature fully charged.

After being "preserved" in this way, the engine should not be started until the car is to be used again.



Lubrication Chart

Lubrication intervals			Index	Lubrication points	Number	Lubricant	Instructions
2,500 km 1,500 miles	5,000 km 3,000 miles	15,000 km 9,000 miles					
×			1	Upper & lower ball joints, L & R	4	Universal or chassis grease	Grease gun
×			2	Drive shaft, outer joint, L & R	2	ditto	ditto
×			3	Drag rod ends	2	ditto	ditto
	×		4	Steering gear	1	ditto or non-freezing lubricants. For extremely cold weather, SAE 40 can be used as an additive.	ditto
	×		5	Distributor gear	1	Universal or chassis grease	ditto
	×		6	Inner drive shafts	2	SAE 40	Oil can
	×		7	Accelerator	5	ditto	ditto
	×		8	Hydraulic brake system	1	Brake fluid SAE 70 R3	Top up
	×		9	Pedals & linkages	4	SAE 40	Oil can
	×		10	Hinges and locks	9	ditto	ditto (see page 17)
	×		11	Door stops	3	Vaseline	Grease
	×		12	Handbrake links	3	SAE 40	Oil can
		×	13	Distributor shaft	2	ditto	ditto
		×	14	Distributor cam	1	Bosch Ft 1 v 4	Grease felt
	×		15	Gearbox	1	EP SAE 80	Check oil level
		×		Gearbox	1	EP SAE 80	Oil change 1.4 lit. (3 US pints). First change at 600—900 miles (1,000—1,500 km).
	×		16	Latch, rear side window	2	Universal or chassis grease	Grease
		×	—	Rear shock absorber	2	Shock absorber oil	Check level
About 32,000 miles (Dealer Approx. 50,000 km servicing)			17	Fan shaft bearings	2	Universal or chassis grease	Re-pack
			18	Front wheel bearings	2		ditto
			19	Rear wheel bearings	2		ditto
When fueling			20	Engine	1	Two-stroke oil Motor oil of Premium and HD types (ML, MM & MS) may also be used. Viscosity preferably SAE 40, but not less than SAE 30.	Mix 3 % oil in fuel (1.33 mixture). When running in, a 4 % (1.25) mixture should be used. NOTE: Higher percentage of oil for self-mixing two-stroke oil. NOTE: At temperatur- es consistently below —5° C (23° F), the oil should be mixed with an equal quantity of gaso- line before being poured into the tank.

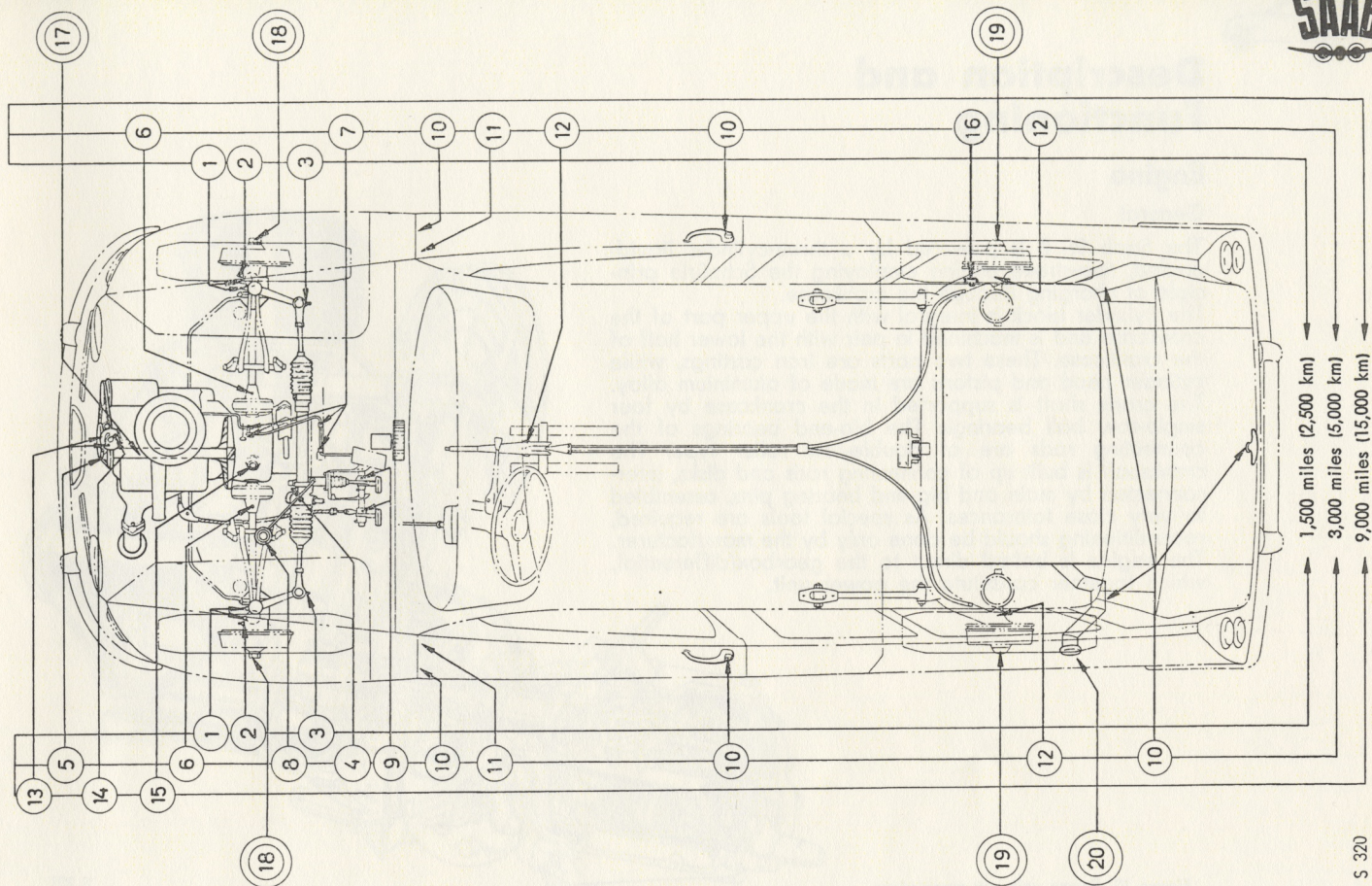


Figure 12. Lubrication points.
Numbers refer to the Lubrication Chart.



Description and Functioning

Engine

General

The Saab 95 B is powered by a three-cylinder liquid-cooled, two-stroke engine employing the Schnürle principle of charging through the crankcase.

The cylinder block is integral with the upper part of the crankcase and is machined in pair with the lower half of the crankcase. These two parts are iron castings, while cylinder head and pistons are made of aluminium alloy. The crank shaft is supported in the crankcase by four single-row ball bearings. The big-end bearings of the connecting rods are of double-row roller type. The crankshaft is built up of connecting rods and disks, interconnected by main and big-end bearing pins, assembled to very close tolerances. As special tools are required, reconditioning should be done only by the manufacturer. The engine is bolted direct to the gearbox/differential, which together constitute the power unit.

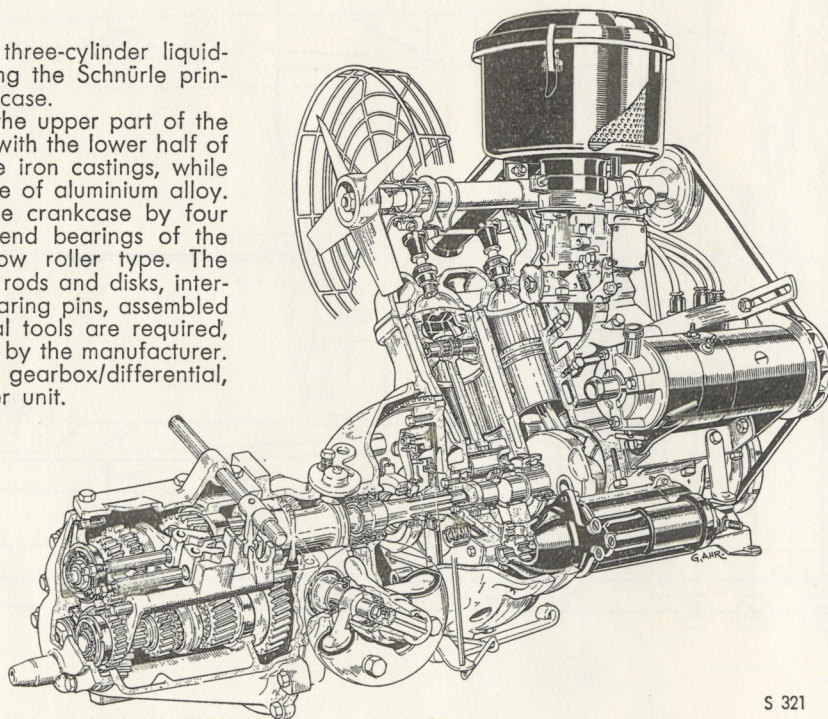


Figure 13. Power unit, cut-away view

S 321

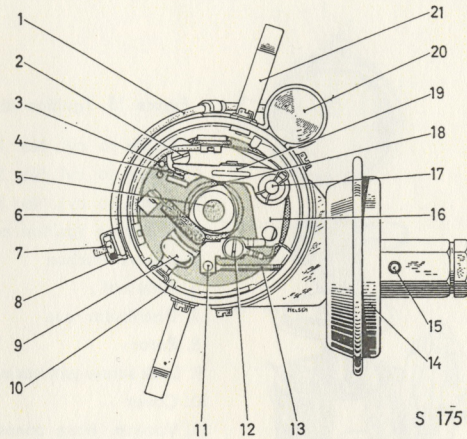


Figure 14. Ignition distributor
Rotor and cover removed

- | | |
|---------------------------------|-------------------------|
| 1. Condenser cable | 12. Ground connection |
| 2. Lock screw | 13. Vacuum advance rod |
| 3. Adjustment for contact plate | 14. Vacuum chamber |
| 4. Contact points | 15. Hose connection |
| 5 & 6. Grease felts | 16. Fixed contact point |
| 7. Cable attachment | 17. Breaker arm pivot |
| 8. Oil cup | 18. Fiber peg |
| 9. Guide support | 19. Breaker arm |
| 10. Mark for ignition timing | 20. Condenser |
| 11. Pivot pin | 21. Clamp spring |

Spark plugs

The spark plugs should be cleaned after approx. 4,500 miles (7,500 km) of driving. With the feeler gauge, check that the spark gap is 0.8 mm (0.032 in.). If adjustment is required, it must be made on the side electrode of the plug, because if the central electrode is bent it may crack the insulator. After 6,000—9,000 miles (10,000—15,000 km) of driving, spark plugs should be replaced. Choice of spark plugs depends on how the car is to be driven. Spark plugs which are too cold may oil up, while too hot plugs may damage the engine. See recommendations on page 52.

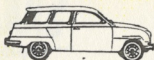
Important

All high tension insulators must be kept clean and dry. Clean every 4,500 miles (7,500 km): ignition coil bakelite cap, distributor cap (inside and outside), ignition cables and spark plug insulators.

Ignition distributor

The ignition distributor is mounted to the right front of the engine. The distributor rotor is driven clockwise by the crankshaft via a worm gear and pinion. As shown in Figure 15, the firing sequence of the cylinders is 1—2—3 (rear-middle-front).

It is essential that the distributor gear be lubricated regularly after every 3,000 miles (5,000 km) and that the contact gap be checked after 9,000 miles (15,000 km). The distributor shaft and the breaker cam should also be oiled at this time, see Lubrication Chart.



*Checking contact points

Contact points and gaps should be inspected every 9,000 miles (15,000 km). Be sure that the contact surfaces are clean and not so burned that they must be replaced. The correct gap of 0.3—0.4 mm (0.012—0.016 in.) should be checked with a feeler gauge when the breaker arm has been moved by the cams to its outermost position. Adjust the gap by unscrewing the lock screw 2, Figure 14, and move the stationary point until the correct gap is obtained. Tighten lock screw when gap is correct.

The distributor shaft is lubricated at the oil cup on the front side of the distributor housing and at the felt inside the cam shaft under the rotor after the rotor has been removed. When fitting new contacts, be sure to lubricate the breaker arm pivot 17 with the same grease as that used when lubricating felt 6, which lubricates the breaker cams.

Note

Do not over-lubricate the ignition distributor.

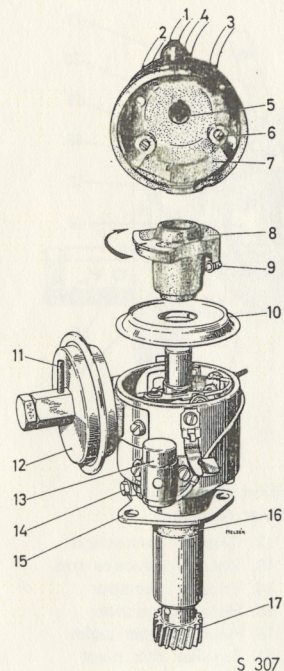
When fitting the rotor, see that the lock screw spring washer locks firmly.

*Ignition timing

The engine is timed using the middle (No. 2) cylinder as a guide. Timing indexes will be found on the crankshaft pulley at the front end of the motor and on the engine block. First remove the distributor vacuum chamber connection, after which timing should be carried out with the aid of a stroboscope at about 3,000 r.p.m. The index on the crankshaft pulley should then coincide with the lower index on the cylinder block with cylinder No. 2 igniting at 17° before T.D.C.

If a stroboscope is not available, the basic timing may be adjusted as follows:

* Should be carried out by an authorised SAAB service garage.



S 307

Figure 15. Ignition distributor

1. Cable to cyl. No. 1
2. Cable to cyl. No. 2
3. Cable to cyl. No. 3
4. Cable to ignition coil
5. Center carbon
6. Terminal
7. Distributor cap
8. Rotor
9. Lock screw with spring washer
10. Cover
11. Vacuum hose connection
12. Vacuum chamber
13. Condenser
14. Lock screw
15. Lock plate
16. O-ring seal
17. Drive pinion
18. Bleeder hose

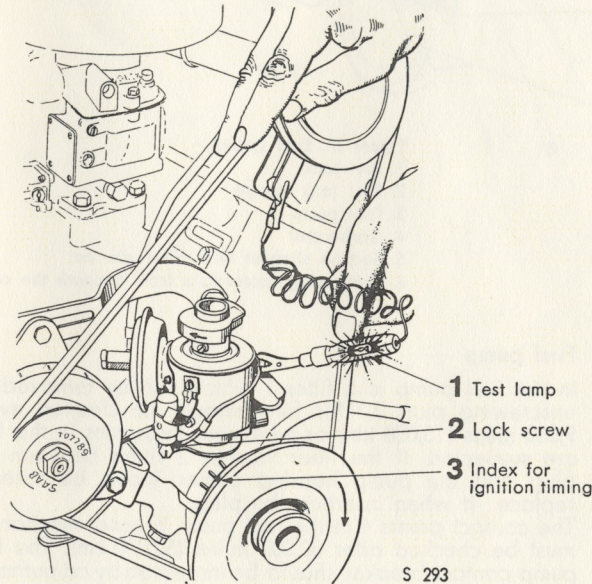


Figure 16. Adjustment of the basic timing

1. Remove the distributor cap and protective cover. Adjust the breaker point gap to 0.3—0.4 mm (0.012—0.016 in.).
2. Rotate the crankshaft until the index on the crankshaft pulley coincides with the middle index on the cylinder block corresponding to 7° before T.D.C. for Cylinder No. 2.
3. The indexes on the rotor and distributor body should then coincide with the index on the distributor housing next to the guide lug on the tension spring attachment, 10 in Figure 14.
4. Connect a test lamp between the primary cable terminal of the distributor and the distributor lock screw and turn on the ignition.
5. Slacken screw, 2 in Figure 16, and rotate the distributor until the test lamp lights, i.e. until the breaker points open. Be sure that the advance regulator weights are constantly retracted, by keeping the rotor in a counter-clockwise position.
6. Having attained the correct setting, tighten the distributor lock screw.
7. Rotate the crankshaft one full turn clockwise and check to see that timing is correct. The lamp should light when the index on the pulley coincides with the middle index on the cylinder block.
8. Clean the distributor cover both inside and out with a clean, dry cloth and be sure that all contact surfaces are clean. Also check that the center carbon 5 slides freely in its holder. Clamp on the distributor cap so that the spring attachment lug fits into its corresponding notch. Secure the cap and see that the ignition cables are correctly inserted to make good contact. The rotor arm should be connected to the ignition cable leading to the middle cylinder, provided that the crankshaft has not been moved after ignition adjustment. The other two ignition cables are connected clockwise to cylinders No. 3 and No. 1 respectively.

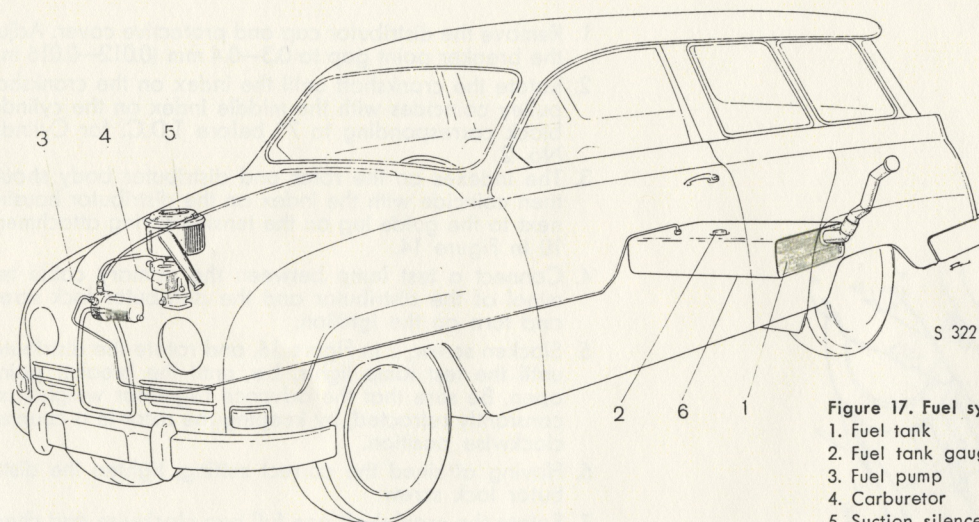
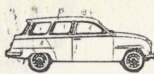


Figure 17. Fuel system

1. Fuel tank
2. Fuel tank gauge
3. Fuel pump
4. Carburetor
5. Suction silencer with filter element
6. Drain plug (accessible from beneath the car)

Fuel system

The fuel tank with built-in mixer is located at the rear of the car under the floor panel of the trunk. It has a capacity of approx. 11.3 US gals. (43 lit.). Fuel is supplied to the engine through a pipe leading from the fuel tank along the floor to the electric fuel pump, from whence it is pumped through a hose to the carburetor. Fuel filters are located inside the plug on the underside of the fuel pump and inside the banjo fitting at the carburetor.

Fuel pump

In the fuel pump is a filter 1 which can be removed by unscrewing plug 3. This filter should be cleaned every 9,000 miles (15,000 km) or whenever impurities in the fuel are suspected. If the fiber washer 2 fitted between the plug and the pump housing comes loose, be sure to replace it when inserting the plug.

The contact points 4 in the fuel pump breaker mechanism must be checked after 30,000 miles (50,000 km). The fuel pump contact breaker should be inspected by an authorized SAAB service garage.

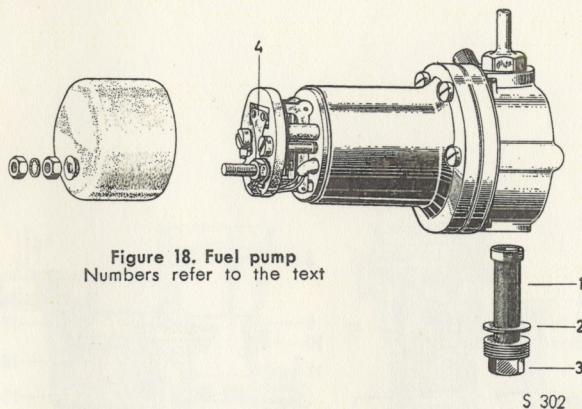


Figure 18. Fuel pump
Numbers refer to the text

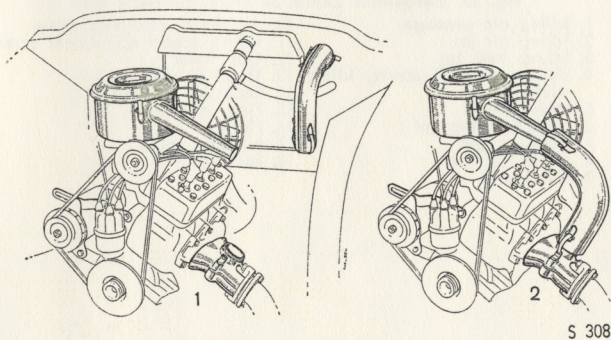


Figure 19. Pre-heater
1. Disconnected 2. Connected

Air-filter

Air entering the carburetor passes through a suction silencer containing the air-filter element, which is secured to the top of the carburetor by a clamp screw and to the fanshaft stand by a bracket. The air intake pipe is connected to the exhaust manifold, so that air may be pre-heated before entering the carburetor. See Figure 19.

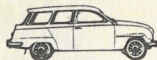
The air-filter in the suction silencer consists of a disposable element, which should be changed every 20,000 miles (30,000 km), or at least every two years.

The filter element should be protected against moisture and therefore must not be washed or oiled. It may be necessary, however, to clean the interior and the lid of the filter housing occasionally. This should be carried out carefully in order to prevent impurities from falling down into the carburetor. The filter element may be cleaned from the inside by careful use of an air hose under low pressure.

Pre-heater

The engine is provided with a device for heating the carburetor air to prevent icing in the carburetor, which may occur at temperatures between -5°C (23°F) and $+15^{\circ}\text{C}$ (59°F) if the relative humidity of the air is above 55 per cent. Carburetor icing causes excessive fuel consumption and loss of power.

Always drive with the pre-heater connected.



Carburetor

The Saab 95 B is fitted with a down-draft Zenith 34 VNN carburetor, which should be adjusted only by experienced mechanics. The following data applies to normal choke and jet sizes. The numbers refer to Figure 20.

Air throat, 9 30 mm

Main system:

Main jet, 5 107
Emulsion jet, 7 200
Compensating jet, 6 110

Idling system:

Air jet, 2 50
Fuel jet, 3 50
Volume control screw, idling mixture, 4 $1\frac{1}{2}$ —2 turns

It is essential that the carburetor be kept free from impurities. For this reason the carburetor feed pipe connection is provided with a filter, which should be inspected regularly. Carburetor jets and ducts should also be checked at regular intervals. This can be done only when the float chamber has been removed. Jet positions and designations are shown in Figures 20 and 21.

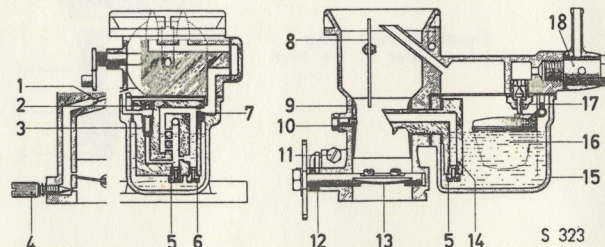


Fig. 20. Carburetor Zenith 34 VNN, cut-away view

- | | |
|---|-----------------------------------|
| 1. Idling air passage | 10. Air throat retaining screw |
| 2. Idling air jet | 11. Idling speed adjustment screw |
| 3. Idling fuel jet | 12. Gas lever |
| 4. Volume control screw, idling mixture | 13. Throttle valve |
| 5. Main jet | 14. Emulsion housing |
| 6. Compensating jet | 15. Float chamber |
| 7. Emulsion jet | 16. Float |
| 8. Choke shutter | 17. Needle valve |
| 9. Air throat | 18. Fuel filter |

Carburetor adjustments must be carried out in accordance with the manufacturer's recommendations. Wrong carburetor adjustments may cause abnormal fuel consumption and rapid wear of the engine. To repeat: only an authorized service garage should undertake carburetor adjustments.

Idling adjustment

Idling adjustment should always be carried out when the engine is warm and in the following manner (numbers refer to Figure 21):

1. Tighten the volume control screw 6.
2. Unscrew it $1\frac{1}{2}$ to 2 turns.
3. Adjust the idling screw 3 to obtain an engine speed of about 700—800 rmp.

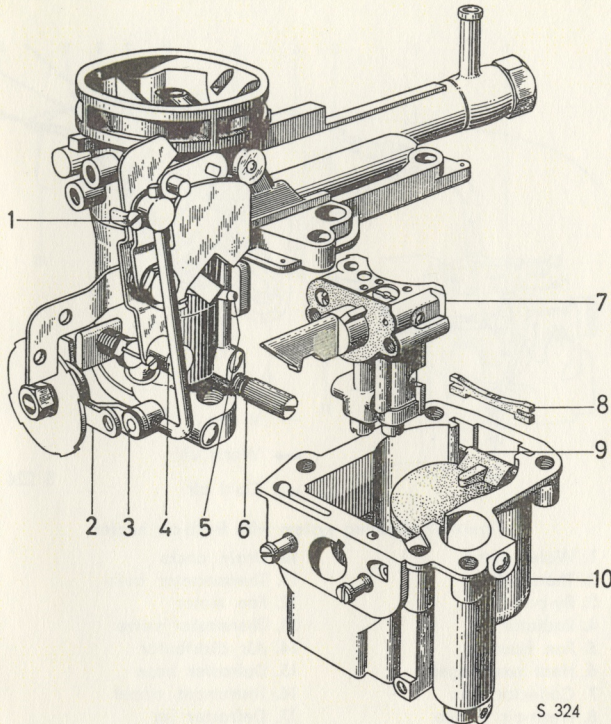
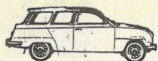


Figure 21. Carburetor Zenith 34 VNN

- | | |
|---------------------------------------|---|
| 1. Stop screw for throttle/choke link | 6. Volume control screw, idling mixture |
| 2. Gas lever | 7. Emulsion housing |
| 3. Idling speed adjustment screw | 8. Float retainer |
| 4. Choke regulator attachment | 9. Float |
| 5. Vacuum connection to distributor | 10. Float chamber |



Cooling and heating system*

General

The capacity of the cooling system, including the heater element, is approx. 7.5 lit. (approx. 2 US gals.). The radiator is located to the rear of the engine and is fitted with a filler cap. Until the engine has reached its proper operating temperature, the radiator inlet hose is closed by a thermostat. Water flows through a by-pass, until it has reached a temperature of approx. 85°C (185°F), when the thermostat opens.

The water pump is integral with the generator.

The Saab 95 B is fitted with two protective caps covering the two air outlets located in the wheel housings behind the radiator. Do not forget to secure the caps when cold weather begins and to remove them in summer. This precaution makes it possible to adapt the cooling system to seasonal weather conditions, so that proper running temperatures can be quickly attained.

Be sure that the filler cap is unscrewed, before draining the radiator. Greatest care should be exercised when removing the filler cap in case the water is boiling. Unscrew the cap carefully so that the steam can escape before taking off the cap.

NOTE: To empty the cooling system completely, both the drain cock under the water pump and the drain cock on the inlet pipe of the engine should be opened. See 10, Figure 22.

On refilling the radiator, be sure that it is completely full. Then start the engine and let it run at a reasonable speed for about 20 seconds or until the water flows through the bleeder valve on the heater element. Fill with more water if necessary, but only use clean water. If possible, use rainwater to avoid the formation of harmful mineral

* Heating system is an Optional Extra.

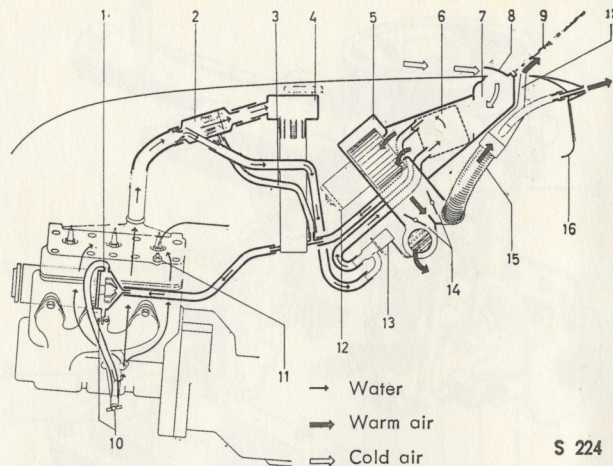


Figure 22. Cooling system with fresh-air heater

- | | |
|---------------------|----------------------|
| 1. Water pump | 10. Drain cocks |
| 2. Thermostat | 11. Thermometer bulb |
| 3. By-pass | 12. Fan motor |
| 4. Radiator | 13. Thermostat valve |
| 5. Fan housing | 14. Air distributor |
| 6. Heat exchanger | 15. Defroster hose |
| 7. Collector box | 16. Instrument panel |
| 8. Fresh-air intake | 17. Defroster jet |
| 9. Windshield | |

deposits in the system. Never fill the radiator with cold water if the engine is hot, or the cylinder block may crack.

Remember

1. To loosen the filler cap and both drain cocks when draining.
2. To bleed the heater element when re-filling the radiator.

Do not forget to close the bleeder valve.

Cleaning the cooling system

The water should be changed twice a year, in the spring and fall, by flushing.

The radiator hoses should be loosened, after which flushing is carried out in opposite direction to the normal flow, to facilitate the removal of deposits which may have formed. Thus the cylinder casings should be flushed through the upper neck and downward; the radiator through the lower pipe and upward.

Cracked hoses and defective clamps should be replaced by new ones, and a rust inhibitor or glycol used to prevent deposits. Should deposits have formed which cannot be removed by flushing, the cooling system should be cleaned by a service garage with special equipment for the purpose.

The thermostat is sealed and may not be dismantled for repair.

Repairing the radiator

If the radiator leaks, it should be repaired by soldering. Also available are various commercial sealers in the form of additives to the radiator water. These should only be used in an emergency, however, as they tend to clog the radiator casings and cause boiling.

Anti-freeze solutions

During cold weather when the temperature falls below the freezing point of water, an anti-freeze must be added

to the water in the radiator; pure water would freeze and expand, cracking the radiator and cylinder block. Ethylene glycol is recommended as an additive. Methylated spirit is not very suitable because of its low boiling point, especially with the high radiator temperatures needed for good heater operation in cold weather.

Ethylene glycol, on the other hand, has a boiling point above that of water; therefore, only water need be added when replenishing the system. A disadvantage with glycol is that, like methylated spirit, it must be handled with care or it may spoil the paintwork of the car. It also reduces the heat dissipation power of the water and should therefore not be added in too great a volume. For the same reason, anti-freeze should not be used in summer.

Ethylene Glycol (US gals.)	Volume % approx.	Freezing Point °C °F	Boiling Point °C °F	Specific Gravity
1 US quart	13	—6 21	101 214	1.012
2 US quarts	25	—14 7	103 217	1.041
3 US quarts	38	—24 —11	104 219	1.055

Ethylene Glycol Volume %	Freezing Point °C °F	Boiling Point °C °F	Specific Gravity
10	—4 15	101 214	1.012
20	—10 14	102 216	1.027
30	—17 2	103 217	1.041
40	—26 —15	104 219	1.055
50	—39 —38	106 223	1.068



Clutch

The clutch pedal should have a play of about 25 mm (1 in.). Adjustment is made by the nut 1, Figure 23. Screw out the nut to reduce the play. To avoid excessive wear of the clutch linings and the release bearing, the play should be checked regularly.

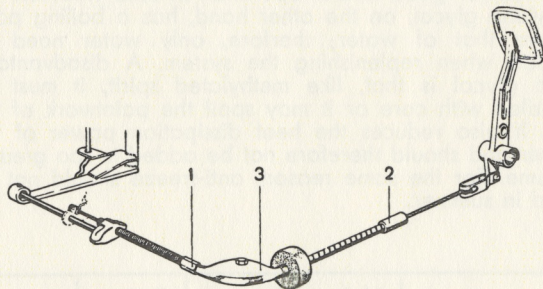


Figure 23. Clutch pedal with adjustment mechanism

1. Adjusting nut
2. Bracket at firewall
3. Pulley segment

Transmission

The transmission is contained in a box with three compartments. The rear section containing shafts, cogwheel and gear shift bar is the actual gearbox. The mid section contains the free-wheeling device and the conical gear of the

differential, from which the driving shafts lead. The front section, which terminates at the engine, contains the clutch throwout bearing as well as the flywheel and clutch. The clutch is of the simple dry plate type with a spring hub.

The car is equipped with a four- speed gearbox. All gears have helical cogwheels in constant mesh and are coupled to their respective shafts by means of toothed couplings. All forward gears are synchronised.

Between the gearbox and the clutch is a free wheel which can be operated from the driver's seat by a handle. For advice on the operation of the free wheel and gear changing, see Running Instructions, pages 12 and 13.

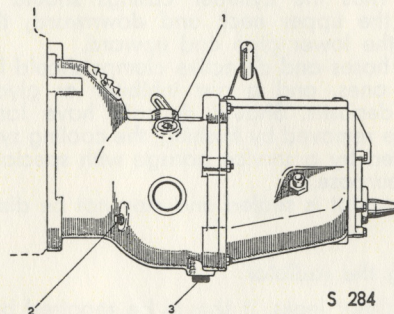


Figure 24. Transmission plugs

1. Filler plug
2. Level plug
3. Drain plug

Brake System

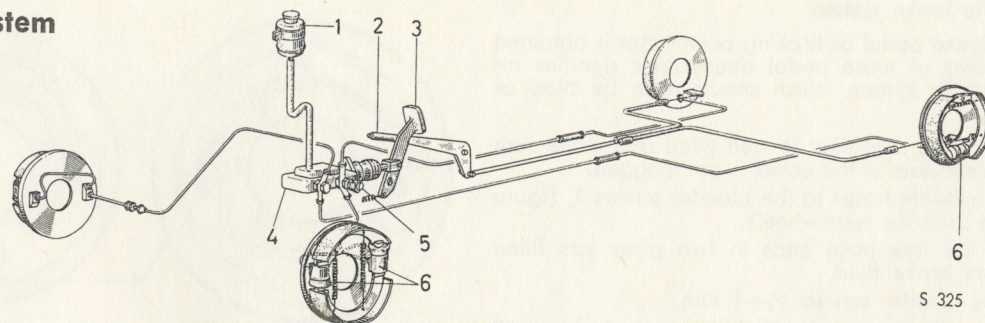


Figure 25. Brake system

- | | |
|--------------------------|---------------------|
| 1. Brake fluid container | 4. Master cylinder |
| 2. Handbrake lever | 5. Stoplight switch |
| 3. Brake pedal | 6. Brake cylinders |

General

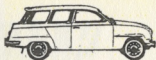
The hydraulic footbrake acts on all four wheels. The brake system is of the two-circuit type, which means that the master cylinder controls the left front and right rear wheels simultaneously with, but independently of, the right front and left rear wheels. Consequently, should a leak occur as a result of damage to the brake system, the braking effect will be lost only on one diagonal pair of wheels but will remain for the other diagonal pair. Indication of a leak will appear first through a very long pedal travel, and secondly by the car swerving, when the brakes are applied, to that side where brake pressure remains on the front wheel. NOTE: The cause of leakage should be examined as soon as possible, and damage — if any — remedied by an authorized garage. The front wheel brakes are equipped with two single-acting brake cylinders and are self-adjusting. The rear

wheels have double-acting brake cylinders. The brake fluid container is housed in the engine compartment to the left of the radiator, and the stoplight switch is fitted to the master cylinder.

The handbrake is mechanical and works on the rear wheels only. The brake lever is situated between the two front seats and is connected to the rear wheel cylinders by two sealed Bowden cables.

Replenishing the brake fluid

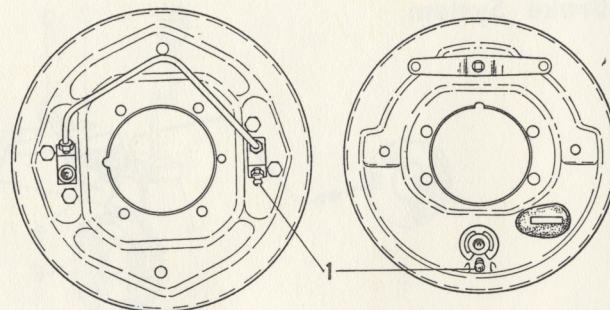
Check to see that the brake fluid container is full. Never use inferior brake fluids, which may ruin the rubber parts and impair the brake system. Follow the advice given in the Lubrication Chart.



*Bleeding the brake system

A resilient brake pedal or braking depressions signifies air in the hydraulic system which should then be bled as follows:

1. Check that the container is well filled and make sure that the vent hole in the cover is not clogged.
2. Connect suitable hoses to the bleeder screws 1, Figure 26, inside both the rear wheels.
3. Immerse the free hose ends in two glass jars filled with clean brake fluid.
4. Open the bleeder screws $\frac{1}{2}$ —1 turn.
5. Have the pedal pumped with long, even strokes until the discharged fluid is free of air bubbles. The ends of the hoses should be kept immersed throughout the bleeding.
6. Tighten the bleeder screws while the pedal is kept depressed.
7. Bleed also the front wheel brakes in the same way. Check that the fluid level in the container does not get too low.
8. Check that all bleeder screws are tightened, and top up with brake fluid. Never use the brake fluid a second time without filtering it.



Front

Rear

Figure 26. Position of the bleeder screws

*Brake adjustment

Wear on the brake linings makes itself apparent when the brake pedal or the handbrake lever have to be applied abnormally hard before braking occurs. There should always be a clear space of 2 in. (5 cm) under the brake pedal when this is depressed to obtain the full braking effect.

As the front wheels have self-adjusting brakes, only the rear wheels need be adjusted.

* Should be carried out by an authorized service garage.

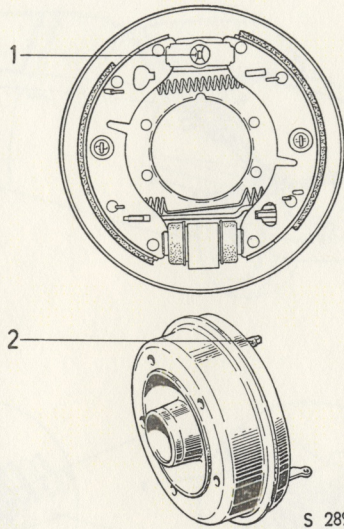


Figure 27. Footbrake adjusting screws, rear wheel
1. Adjustment device 2. Adjustment point

Footbrake adjustment

1. Raise the rear of the car until the wheels are free.
2. The adjusting screw for the rear wheel brake consists of a square pin located inside the brake shield, see Figure 27. Tighten the pin with a special tool included in the tool kit until the wheel is locked, then loosen by unscrewing one or more notches until the wheel rotates freely again.

3. After adjustment, check that the brake pedal has a play of $\frac{1}{8}$ in.— $\frac{1}{4}$ in. (3—6 mm), otherwise the brake linings will not be free when the brake pedal is released.

The front wheel brake linings should not be adjusted because they adjust themselves automatically.

If the wheel cannot be locked with the adjusting screw, the brake linings are probably worn badly and should be replaced without delay. To ensure uniform braking power, reline both front wheels or both rear wheels at the same time; **never** on one side only. When relining, use only SAAB original equipment or spare parts **recommended** by SAAB.

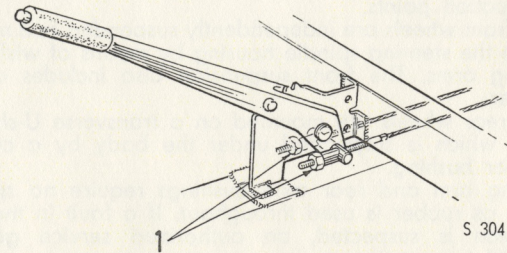
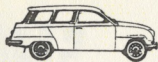


Figure 28. Brake lever with adjusting nuts

Handbrake adjustment

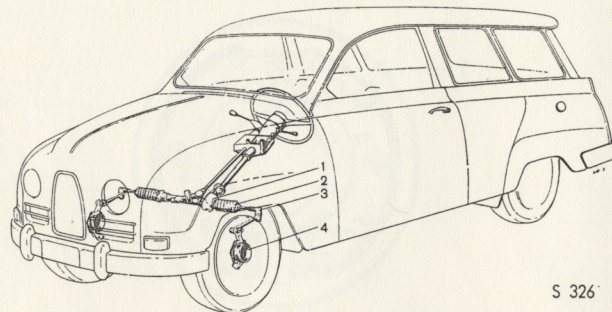
It should be possible to pull the handbrake two notches before the brakes drag. Brake level play is adjustable by nuts 1 (Figure 28), accessible from the driver's seat. This adjustment — if needed — must not be carried out, however, until after the footbrake has been adjusted.



Steering mechanism

The steering movement is transmitted from a pinion at the end of the steering column to a transverse rack, the ends of which are connected to the steering arms by adjustable drag rods of equal length. The drag rods are attached to rack and steering arms by adjustable ball joints and drag rod ends respectively.

NOTE: All adjustments to the steering gear should be carried out by an authorized SAAB service garage.



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Suspension

The Saab 95 B is equipped with coil spring suspension at both front and rear. Rubber bushings are used extensively to minimize road noise and reduce the number of lubrication points.

The front wheels are independently suspended and mounted in the steering spindle housing by means of wishbone spring arms. The front suspension also includes a stabilizer.

The rear wheels are mounted on a transverse U-shaped axle which is suspended under the body by a central rubber bushing.

Spring arm and rear axle bushings require no special care as rubber is used throughout. If a fault in the suspension is suspected, an authorized service garage should inspect the car.

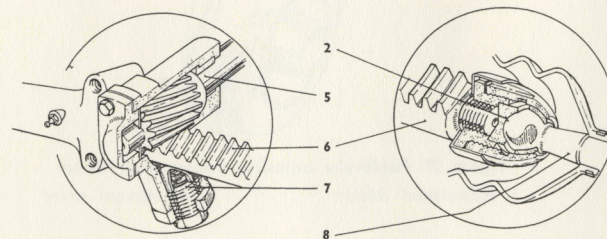
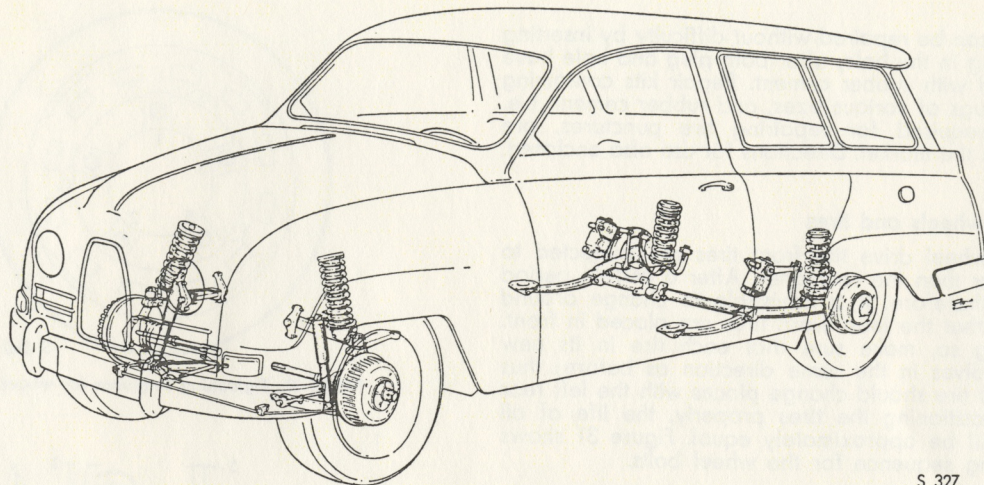


Figure 29. Steering mechanism

- | | |
|--------------------------------------|--------------------------------|
| 1. Steering gear | 5. Steering column with pinion |
| 2. Inner ball joint | 6. Rack |
| 3. Outer ball joint | 7. Spring and plug |
| 4. Spindle housing with steering arm | 8. Drag rods |

Shock absorbers

The double-acting, hydraulic-telescopic shock absorbers of the front suspension are rubber mounted to the lower spring arms. The rear suspension has double-acting arm shocks, which are mounted to the body, and the arm is attached to the rear axle via a connecting rod.



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Figure 30. Axles and suspension

Wheels and tires

General

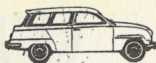
In case of puncture, air leaks out from a tubeless tire very slowly, since the hole in the synthetic rubber layer is squeezed almost closed by the tire pressure. If the penetrating object remains in the tire, the pressure in the tire may be retained long enough to brake safely, or even to proceed to a service garage, before the tire deflates. Repairing a tubeless tire is so simple that in most cases removal of the wheel is not required.

Fitting and repair of tubeless tires should be carried out,

if possible, by a tire repair shop. The following directions are intended for those who wish to undertake minor repairs themselves, or for occasions when no service facilities are available.

Repair of leaks

If a tire does not retain its pressure, the fault may sometimes be located by close inspection. When the penetrating object has been removed, the tire can often be repaired without removing the wheel. To locate minor leaks it may be necessary to remove the wheel and immerse it in water.

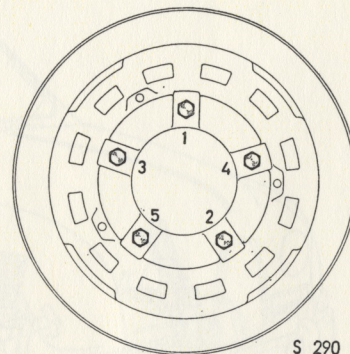


Tires

A puncture can be repaired without difficulty by inserting a rubber plug in the hole, after both plug and hole have been coated with rubber cement. Repair kits containing a needle, plugs of various sizes, and rubber cement, i. e. everything required for repairing tire punctures, are available on the market. Directions for use also enclosed.

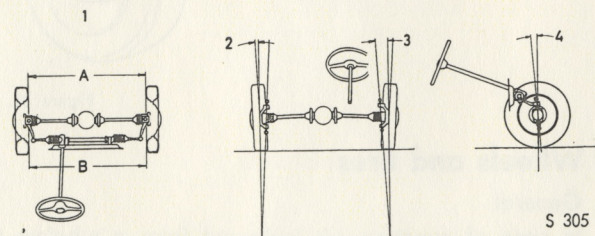
Rotation of wheels and tires

With front wheel drive the front tires are subjected to heavier wear than the rear ones. After a certain period of driving, therefore, it is advisable to change around the tires so that the least worn tires are placed in front. When doing so, make sure that each tire in its new position revolves in the same direction as before; thus the left front tire should change places with the left rear tire. By repositioning the tires properly, the life of all four tires will be approximately equal. Figure 31 shows the tightening sequence for the wheel bolts.



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Figure 31. Tightening sequence for wheel bolts



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Figure 32. Front wheel alignment

- | | |
|----------------------------|------------------------------------|
| 1. Toe-in B—A | = 2 mm \pm 1 (.08 in. \pm .04) |
| 2. Camber | = $3/4^\circ \pm 1/4$ |
| 3. "King pin" inclination* | = $2^\circ \pm 1/2$ |
| 4. Caster | = $7^\circ \pm 1$ |

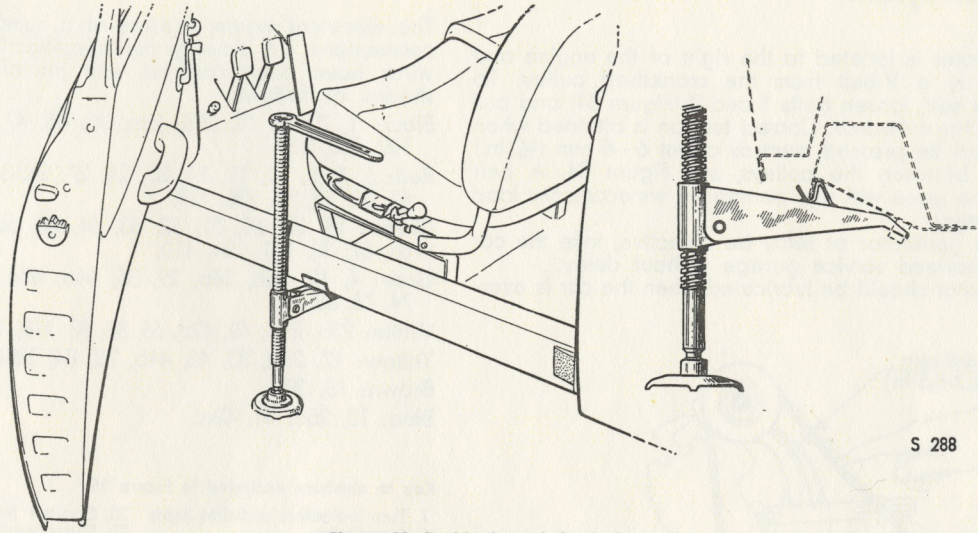
* Since Saab 95 B has ball joint suspension of the wheels, the term "King pin" refers to an imaginary line through the centers of the ball joints. See Figure.

Front wheel alignment

It is essential that the front wheels be correctly aligned. Wrong alignment impairs road holding, often making it more difficult to drive the car. Abnormal wear of the tires and steering mechanism may also occur, resulting in greater tire and repair expenses.

To avoid incorrect front wheel alignment, the car should be taken to an authorized service garage for inspection and possible adjustment every 5,000 miles (7,500 km) or whenever there is reason to believe that alignment is faulty.

The various alignment angles are shown in Figure 32. Note that dimensions A and B are measured between the wheel rims.



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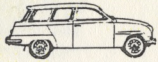
Figure 33. Positioning of the jack

Jack and spare wheel

When jacking up the car for a wheel change, brake adjustment, etc., the jack should be fitted in the bracket located under the floor beam, see Figure 33.

If a garage jack is used, be sure that it does not damage the underside of the body. Jacking points are provided.

The front jacking point is a bent plate behind the exhaust muffler; the rear point is located on the body center line, just **in front of** the rear axle. Place a piece of wood on the lifting head before raising the rear end of the car. The spare wheel, jack, and tool kit are placed under the back seat so as to be easily accessible even when the car is loaded.



Electrical System

Generator

The generator is located to the right of the engine and is driven by a V-belt from the crankshaft pulley. To tighten the belt, loosen bolts 1 and 2 (Figure 34) and pull the generator outwards. Correct tension is attained when the belt can be pressed inwards about 6—8 mm ($\frac{1}{4}$ in.) half way between the pulleys, see Figure 34. A belt which is too loose will slip, putting an unnecessary load on the battery.

Should the generator or relay be defective, take the car to an authorized service garage without delay. The generator should be lubricated when the car is overhauled.

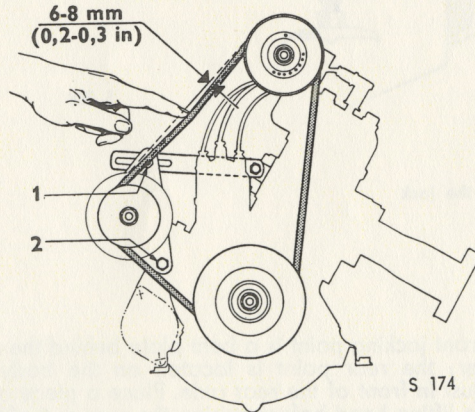


Figure 34. Adjustment of belt tension

1. Adjusting screw
2. Set screws

The electrical system consists of a number of adjoining connections. To simplify the identification of them the wires have been covered with insulation of different shades, as follows:

Black: 1, 7, 18, 19, 23a, 24a, 45, 46, 47, 48, 49, 71, 105, 109, 135, 136.

Red: 5, 8, 9, 10, 11, 14, 20, 21, 27, 28, 32, 39, 61, 63, 65, 67, 68, 72, 92, 126, 129.

Green: 16, 22, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 86, 87, 88, 101, 104, 110.

Grey: 4, 12, 25b, 26b, 29, 35, 44a, 62a, 62b, 64, 69, 70, 74, 75, 85, 93.

White: 23b, 24b, 40, 42b, 66, 82, 83, 118, 128a.

Yellow: 17, 26a, 33, 43, 44b, 73, 84, 128b.

Brown: 15, 30.

Blue: 13, 25a, 41, 42a.

Key to numbers encircled in Figure 35

- | | |
|------------------------------------|--------------------------------------|
| 1. Turn indicators and side lights | 20. Coolant thermometer |
| 2. Headlights | 21. Speedometer and mileage recorder |
| 3. Horn | 22. Fuel gauge |
| 4. Distributor | 23. Dip switch |
| 5. Spark plugs | 24. Flasher |
| 6. Generator | 25. Ignition and starter switch |
| 7. Fuel Pump | 26. Headlight switch |
| 8. Starter | 27. Instrument illumination rheostat |
| 9. Battery | 28. Heater fan switch |
| 10. Relay | 29. Windshield wiper switch |
| 11. Fuse Box | 30. Courtesy light switch |
| 12. Ignition coil | 31. Horn button |
| 13. Stop light switch | 32. Turn indicator switch |
| 14. Heater fan motor | 33. Courtesy light with switch |
| 15. Wiper motor | 34. Fuel tank gauge |
| 16. Turn indicator repeater light | 35. Stop lights and turn indicators |
| 17. Charge indicator light | 36. Tail light |
| 18. High beam indicator lamp | 37. Number plate light |
| 19. Electric clock | |

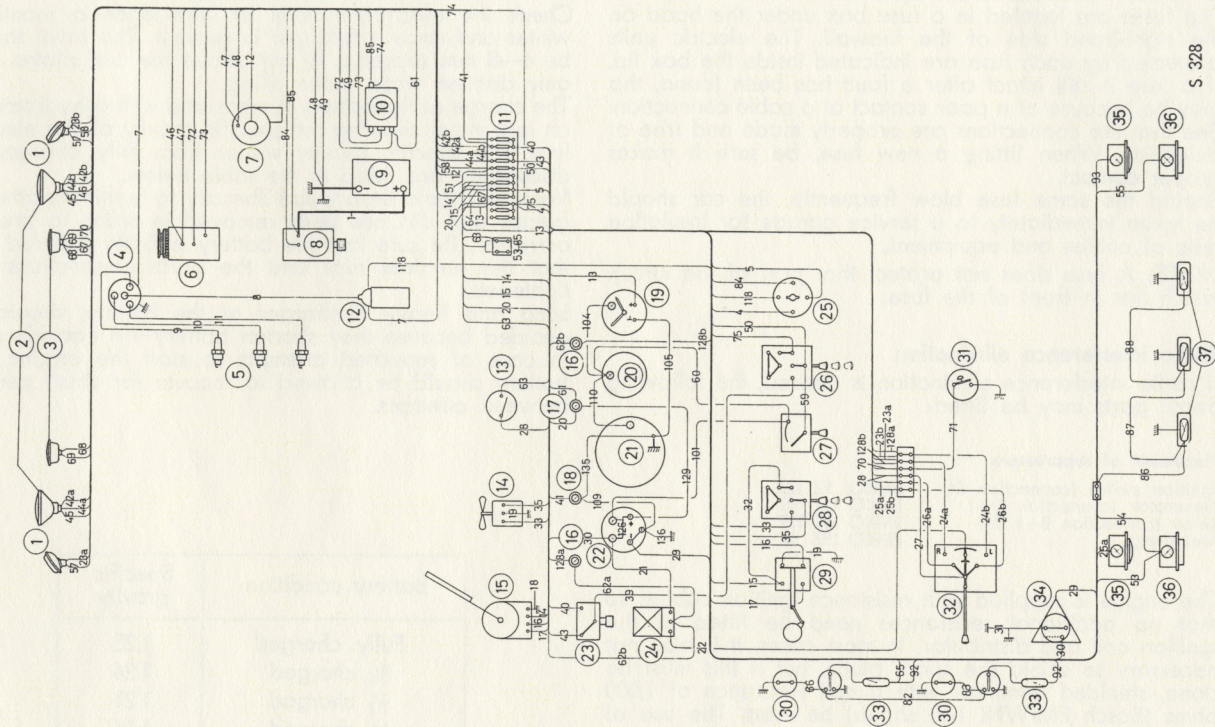
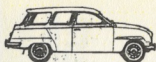


Figure 35. Wiring diagram
Cable numbers refer to table on opposite page



Fuses

The electrical system is provided with twelve fuses, two of which are intended for optional extras or as spares. The fuses are located in a fuse box under the hood on the right-hand side of the firewall. The electric units protected by each fuse are indicated inside the box lid. If a fuse is still intact after a fault has been found, this may be because of a poor contact at a cable connection. See that the connections are properly made and free of oxidation. When fitting a new fuse, be sure it makes proper contact.

Should the same fuse blow frequently, the car should be taken immediately to a service garage for insulation tests of cables and equipment.

NOTE: A fuse does not protect that part of the circuit which lies in front of the fuse.

Radio interference elimination

If radio interference elimination is desired, the following Bosch parts may be fitted:

Placement of suppressors

Ignition switch (connection 54)	EMKO 9Z 18Z
Generator (connection D+)	EMKO 15Z 10Z
Relay (connection B+) (51)	EMKO 15Z 12Z
Fuel pump	EMKO 19Z 3Z

The engine is supplied with resistance ignition cables, so that no additional resistances need be fitted at the ignition coil and distributor. In most cases, it is also not necessary to shield the spark plugs, but if this must be done, shielded terminals with a coil resistance of 1,000 ohms (Bosch EM/WFR 1/2) should be used. The use of extra shielding in the resistance ignition cable has an adverse effect on the spark at the plugs, resulting in reduced engine output.

Battery

The battery is one of the most important parts of the car and should be checked and serviced carefully.

Check the electrolyte level at least once a month in winter and once a fortnight in summer. The level should be 6–8 mm (approx. $\frac{1}{4}$ in.) above the cell plates. Use only distilled water when filling.

The charge of the battery is measured with a hydrometer, an instrument showing the specific gravity of the electrolyte. The specific gravity values from fully charged to discharged are listed in the table below.

Vaseline should be applied liberally to terminals after all grease and dirt has been removed in order to prevent corrosion. Be sure that the battery is firmly secured and that the terminal nuts and the earth connections are tightened.

Long and heavy discharges of the battery should be avoided because they shorten battery life considerably. In case of repeated attempts to start the engine, the battery should be allowed to recover for short periods between attempts.

Battery condition	Specific gravity
Fully charged	1.28
$\frac{3}{4}$ charged	1.24
$\frac{1}{2}$ charged	1.21
$\frac{1}{4}$ charged	1.16
Discharged	1.12

Bulb replacement

Headlights, U. S. A., Sealed Beam

Open the hood and disconnect the cables from the unit. Screw out the headlight adjustment screws and detach the unit by loosening its upper pivot attachment. Note the coil spring at each attachment. Separate the sealed beam unit from the sheet metal body by detaching the chromium-plated clamp ring. Fit the new sealed beam unit in the headlight body and secure it by tightening the screws of the clamp ring. Make sure the unit is correctly installed by following the maker's instructions. Install the headlight in the hood. First fit the upper attachment with spring to the hood and then screw in the two adjustment screws. Fit the two coil springs and tighten screws. Connect the cables to the unit and aim the headlights.

Headlights, other countries, asymmetric light

Open the hood and push back the rubber cap behind the headlight. Compress and loosen the tension spring, thus allowing the lampholder to be pulled out. Replace the faulty bulb and remount the lampholder. Use a clean cloth or the bulb wrapping when inserting the new bulb to avoid handling it. Make sure that the guide lug is properly seated and fits the rubber cap so that it seals tightly around the holder, and so that the drainage hole faces downwards.

Instrument lights

All the bulbs in the instrument unit are fitted in removable sockets and are accessible from under the instrument panel.

Other lamps

Loosen the set screws and remove glass (and frame). Replace the faulty bulb and check that it is firmly positioned and makes good contact. Clean the lamps and the reflector. Fit the glass (and frame), and be sure to obtain proper sealing against the rubber packing.

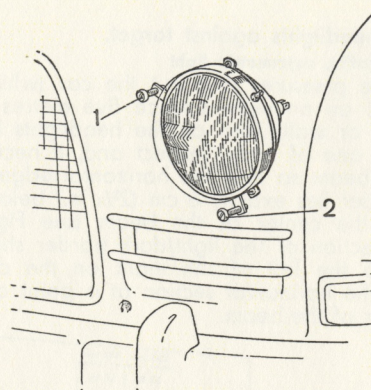


Figure 36. Screws for adjusting headlights

1. Screw for horizontal adjustment
2. Screw for vertical adjustment

*Aiming headlights

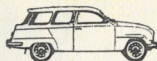
The headlights are mounted in the hood by two set screws which also serve as adjusting screws. See Figure 36.

The upper screw 1 is used for horizontal adjustment. The beam raised or lowered respectively by moving the lower screw 2 in and out.

It is essential that the headlights should be adjusted for the best possible lighting with the least glare.

NOTE: When a SAAB fitted with asymmetric headlights is taken abroad to a country where the opposite rule of the road is in force, the asymmetric section of the headlights should be masked with light-proof tape so that a symmetric beam is obtained.

* To be undertaken only by an authorized service garage.



*Aiming headlights against target.

Left-hand traffic, asymmetric light

Check tire pressures and put the car (which should be unloaded) on an even surface five metres (17 ft.) from the chart or wall. Turn on the headlights half-way and cover up one of them. Inspect and, if necessary, adjust the light beam so that the horizontal edge of the light/dark border lies exactly 6 cm ($2\frac{3}{8}$ in.) below and to the right of the center of the beam (see Figure 37). The sloping section of the light/dark border should lie completely to the left of the mark on the chart, thereby meeting the horizontal section at a point directly below the center of the beam.

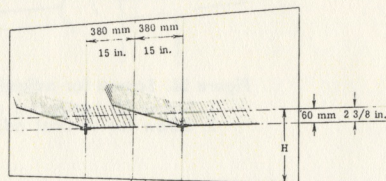
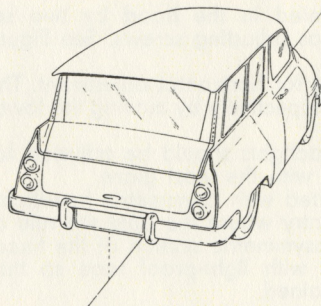


Figure 37. Aiming left-hand traffic asymmetric headlight against target.

H = Height of headlight centers



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* Should be carried out by an authorized service garage.

Adjust the other headlight in the same way, after which the full beams should shine evenly.

Right-hand traffic, asymmetric light

The target for aiming the asymmetric headlights is shown in Figure 38. Place the car at a distance of 5 metres (17 ft.) from the target, switch on the low beams and mask one lamp. Check, and if necessary, adjust the beam until the horizontal part of its light-darkness limit falls exactly 6 cm ($2\frac{3}{8}$ in.) below and entirely to the left of the headlight center. The inclined part of the light-darkness limit must be entirely to the right of this mark and should thus intersect the horizontal limit under the headlight center. Adjust the other headlight similarly, after which a routine check of the high beams should prove that these are symmetric.

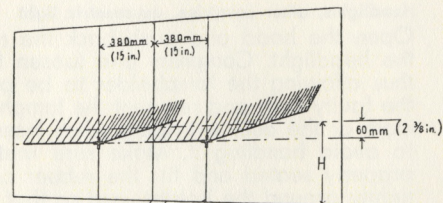
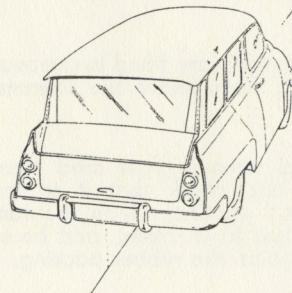


Figure 38. Aiming right-hand traffic asymmetric headlights against target

H = Height of headlight centers

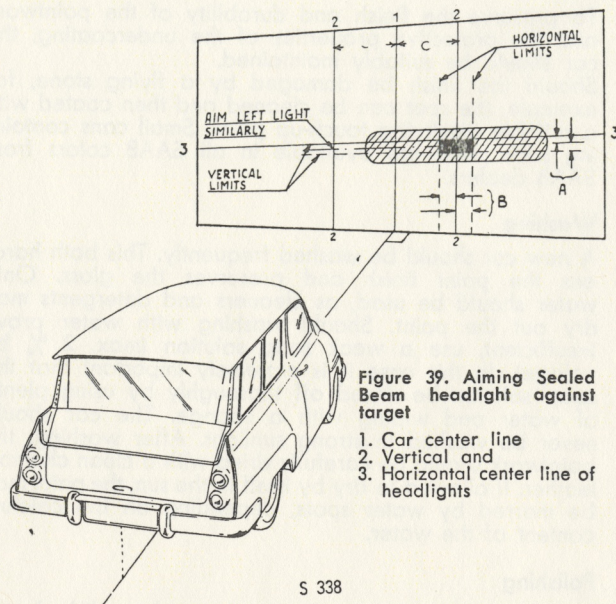


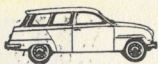
Right-hand traffic, Sealed Beam (U. S. A.)

The aiming of Sealed Beam asymmetric headlights should be carried out against a target, as shown in Figure 39, or with special equipment giving equivalent results. The various lines of the target are the car center line, 1, the two vertical headlight center lines 2-2 and the horizontal headlight center line, 3-3.

Measure the distance between headlight and target, 7.5 metres (25 ft.) and adjust the line 3-3 to be horizontal at the height of the headlight centers. Switch on the main beams and aim one at a time, with the other one masked. The centers of the high intensity zones should be adjusted 50 mm (2 in.) below the intersection points of the lines 2-2 and the line 3-3. However, there are certain limits within which the beam centers should be kept. Thus they must not be to the left of or more than 150 mm (6 in.) to the right of straight ahead, neither above nor more than 100 mm (4 in.) lower than the line 3-3. This horizontally and vertically limited area is shown as a black field on the target in Figure 39. If the headlights are aimed according to this description, no separate adjustment will be required for the low beams.

A = 2 in. (50 mm)
B = 6 in. (150 mm)
C = 15 in. (380 mm)





Body

Care of finish

To preserve the finish and durability of the paintwork and the protective properties of the undercoating, the car should be suitably maintained.

Should the finish be damaged by a flying stone, for example, the spot can be cleaned and then coated with a suitable air-drying touch-up paint. Small cans containing such paint are available in all SAAB colors from SAAB dealers.

Washing

A new car should be washed frequently. This both hardens the paint finish and preserves the gloss. Only water should be used, as cleaners and detergents may dry out the paint. Should washing with water prove insufficient, use a weak soap solution (max. 2 % by volume). In this case it is extremely important that the soap solution be rinsed off thoroughly by using plenty of water and wiping with a sponge. The car should never be washed in strong sunlight. After washing, the paintwork should be carefully dried with a clean chamois leather. If allowed to dry by itself in the sun, the paint may be marred by water spots, depending on the calcium content of the water.

Polishing

In general, a synthetic paint should not be polished until absolutely necessary. On no account should paint be polished before it has been allowed to age for at least 5—6 months. It may be several years before paint surfaces need to be cleaned. The purpose of polishing is to give paint surfaces an attractive sheen while providing enough grease to prevent cracking and drying out. Never use an abrasive polish on a new car. Before any

polishing, the paintwork must, of course, be thoroughly cleaned to prevent scratching.

Waxing

After polishing, the car should be waxed. The same conditions apply here, i. e. a new car may not be waxed for at least 5—6 months after it has been painted. After the wax has been applied (to a small area at a time), it is very important that the paint surface be well polished to remove any traces of wax.

Care of underbody

The advantages attained by underbody coating can only be enjoyed if it is continuously checked and maintained. This provides both a protection against rust and an insulation against road noises. The undersides of the fenders, which are constantly subject to being hit by flying stones and the like, must be looked after with special care.

Should the underbody coating be torn or loosened, the underpan should be thoroughly cleaned before a new coating is applied. Cleaning is best done with a scraper and wire brush, after which the underpan should be cleaned with, for example, gasoline.

When applying a new coating, do not use too much or it may run and even fall off completely after drying.

Chrome-plated parts

The alkaline solution sprayed on gravel roads in summer can spoil the chrome-plated surfaces. The best way to prevent corrosion of these parts is to wash them frequently and thoroughly with soap and water or a neutral cleaner, such as gasoline. When the surfaces have been washed and dried, it is advisable to apply a wax of the same type as that used for the finish.

Never use polish on chrome-plated parts.

If the chrome has been scratched down to the metal, any rust in the scratch may be removed by applying phosphoric acid in a solution of one part acid to two parts of water. The scratch should then be thoroughly washed with clean water and wiped dry. Further corrosion may be prevented by coating the damaged area with clear cellulose varnish or wax.

Engine compartment

The engine compartment should be cleaned with a brush or rag dipped in kerosene, and then hosed with warm water. Be sure that no kerosene penetrates the fan shaft bearings and that the water jet is not directed straight against any electric unit.

Rubber floor mats

The mats should be washed with soap and lukewarm water. Gasoline or other rubber-deteriorating fluids must not be used. After cleaning, mats may be coated with rubber paint.

The glass surfaces should preferably be cleaned with a chamois leather or a linen rag moistened in water.

Care of upholstery

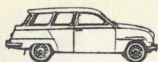
The upholstery in the car is partly of plastic and partly of cloth. The plastic upholstery does not let through any dirt, repels dust and is resistant to oil and gasoline. If soiled, plastic surfaces may be easily cleaned with water and a synthetic detergent. If badly stained by oil or the like, it can be cleaned with white spirit, trichlorethylene, etc. These organic solvents, however, should not be used too often, because they tend to stiffen the plastic.

The cloth upholstery may be effectively cleaned with a cloth moistened in soap solution or other suitable stain remover.

Trouble Shooting

The following directions and advice are intended to help to locate and remedy minor faults which may occur when motoring.

1. **The engine does not start, although it is cranked by the starter at normal speed**
 - a. Check that the tank contains sufficient fuel and that the charge indicator lamp lights up when the ignition is switched on.
 - b. In cold and damp weather, clean the spark plug insulators and wipe them dry if grounding is suspected.
 - c. See that the fuel pump fuse has not blown, and that no corrosion has formed between the fuse and its holder.
 - d. Check that the fuel line fittings are tight at pump and carburetor.
 - e. If the engine has been cranked for some time without starting, too much fuel may have entered the cylinders and soaked the spark plugs. Dry out cylinders by removing the spark plugs and cranking the engine with the starter. Insert dry spark plugs.
 - f. Check that the choke on the carburetor is not jammed. Let the starter crank the engine while the accelerator is constantly kept pressed down 5—10 mm ($\frac{1}{4}$ — $\frac{1}{2}$ in.).
 - g. Check that the fuel pump is feeding fuel by loosening the fuel hose fitting at the carburetor and switching on the ignition for a moment.
2. **Should the engine still fail to start, check whether a spark appears at the spark plugs**
 - a. Remove the ignition cable from one spark plug at a time and rotate the starter with the ignition switched on. A powerful spark should now jump the gap between cable and cylinder block.



- b. If there is no spark or only a faint one, check that the ignition cables are properly inserted in the distributor and ignition coil. Remove the cables and clean their terminals.
- c. Take off the distributor cap and wipe it dry. Inspect and clean all connections.

3. Sparks appear, but the engine fails to start, although fuel is properly fed to the carburetor

Check that the carburetor jets and ducts are not clogged. Clean the carburetor if required. See Figures 20 and 21.

4. Should the engine misfire, the cause may be:

1. An ignition cable has become loose and there is short-circuit with the metal.
2. A spark plug is fouled. Clean and adjust gap.
3. One of the contacts in the distributor cap is corroded or burnt.
4. The distributor cap is cracked or moist.
5. The terminal of a distributor ignition cable is not functioning properly.

5. Engine loses power. Check that:

1. Ignition cables are properly connected.
2. Spark plugs are clean and correctly gapped.
3. No carburetor jet or duct is clogged.
4. Accelerator is not jammed, thereby obstructing movements of throttle valve.
5. Grounding has not occurred in the ignition system.
6. Carburetor icing has not occurred (if weather is cold and damp). Connect preheater.

6. Ignition is switched on, but charge indicator does not light. The cause may be:

1. The battery is run down or a battery cable is loose.
2. A fuse in the ignition coil/fuel pump is burnt.

3. A cable has poor contact at the ignition switch or at the ammeter.

4. Indicator light bulb is burnt out.

7. No sparks at the spark plugs, although the ignition is switched on and the charge indicator lamp lights up. The cause may be:

1. Poor connections between cables and distributor/ignition coil.
2. Ignition cable is damaged, causing a short-circuit with the metal.
3. Moisture in distributor.
4. Crack in the distributor cap or rotor.
5. Defective ignition coil.

Grounding which occurs in the bakelite cap of the distributor or ignition coil can be temporarily remedied by cleaning and scraping the crack with a knife or similar instrument.

8. Charge indicator lamp lights while driving.

1. Generator V-belt is broken or too slack.
2. Generator relay defective.
3. Generator defective.

9. Starter runs very slowly

1. Battery run down.
2. Earth connections/cable connections at battery terminals or at starter are corroded or not sufficiently tightened.
3. The carbon brushes in the starter may be jammed, worn, or dirty.

10. Battery run down. The cause may be:

1. Electrolyte level too low.
2. Generator V-belt slipping.
3. Generator relay or generator defective.
4. A cable is poorly insulated.
5. A current-consuming unit fails to switch off.

Optional Extras for Saab 95 B

Heater

Description of the heating system is to be found on page 28.

Ventilation and heating controls

The levers shown in Figure 40 are used to admit warm, cool or mixed air to the interior of the car.

The lever marked TEMP sets the thermostatically regulated water valve to heat the incoming air to the desired temperature. This temperature remains constant at the pre-selected level irrespective of driving speed and whether the fan is working or not. Maximum heating effect is obtained when the lever is pushed right up. When the lever is right down, the heater is switched off.

The lever marked VENT controls the supply of air to the floor, sides and back seat. The air vents are open when the lever is up, closed when it is down.

The lever marked DEFROST controls the supply of air to the inside of the windshield. Here, too, the up and down positions correspond to open and shut respectively.

The fan motor can be run at two speeds, i.e. with the switch pulled out to the first or second stop.

Use the fan when driving at low speed

At speeds in excess of about 30 m.p.h. (50 km/h), a forced draught is generated which is normally sufficient to enable the air heater to function satisfactorily. Thus the fan need only be used when the car is stopped or moving at low speed.

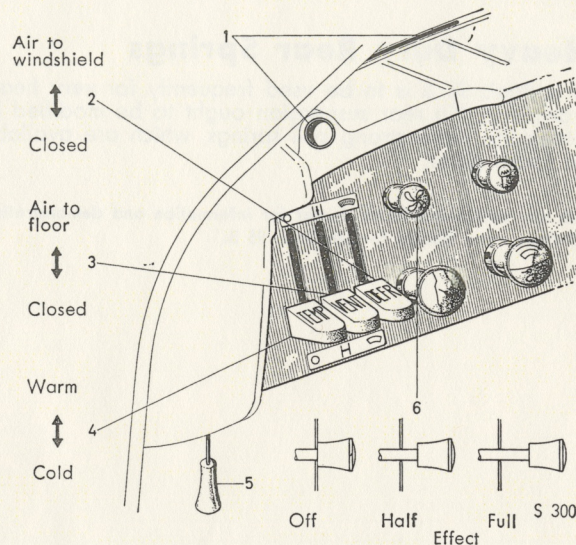


Figure 40. Heater controls

1. Defroster openings
2. Air control, windshield
3. Air control, floor
4. Heat control
5. Grill screen control
6. Fan motor switch



Safety Belt

Safety belt kits are stocked as spares and they are very easily installed according to the instructions enclosed. The rear attachment of the belt is located just under the quarter window, where the panel is reinforced. The other end of the belt is attached to the floor between the front seats. Attachment points in the floor in front of the back seat cross-beam permit the use of lap-and-shoulder belts.

Heavy Duty Rear Springs

If a Saab 95 B is to be used frequently for very heavy transports, the rear suspension ought to be modified by fitting the extra strong coil springs, which are available as spare parts.

Ask any authorized SAAB dealer for information and demonstrations of these extra fittings for the Saab 95 B.

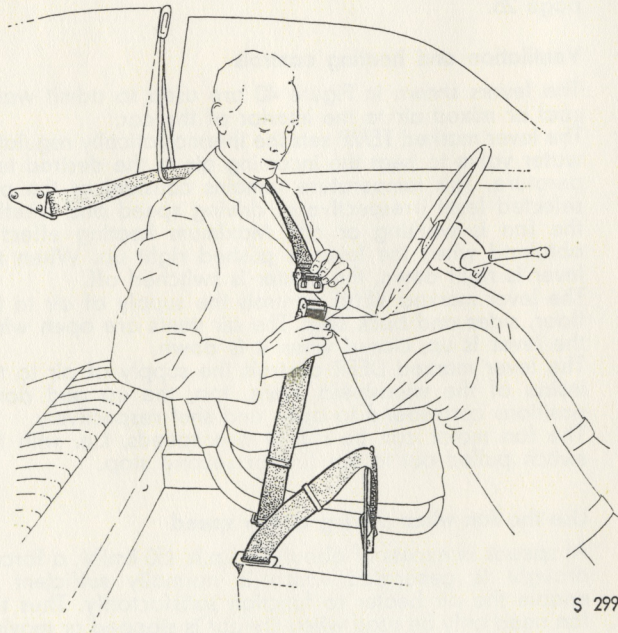


Figure 41. Safety Belt

S 299

Motoring Abroad

In certain areas SAAB owners may not find adequate servicing facilities at garages and service stations familiar with the Saab 95 B. The manufacturer is aware of this difficulty and has established spare parts warehouses in such areas. If the owner plans to drive in an area where SAAB servicing is limited, he may profit from the following advice.

Before departure

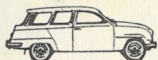
1. Remember to take the Owner's Manual.
2. Be sure the tool kit is complete.
3. The equipment should include: a complete set of engine gaskets; fan belt; breaker points; distributor cap; a box of fuses; one set of spark plugs and a roll of light-proof tape for the headlights.
4. Include a list of SAAB garages and dealers for the area to be visited. This may be obtained from SAAB dealers or motoring organizations.

During the trip

1. Be sure to use high-quality fuel — at least 80 octane.
2. Avoid fuels containing alcohol and benzole as these in certain mixtures with oil may damage the engine.
3. Add only two-stroke oil to the fuel. In exceptional cases, if two-stroke oil is unavailable, standard four-stroke oil of Premium and HD grade (ML, MM and MS types according to the new API system) may be used, provided they have a viscosity of at least SAE 30. It is a good idea always to carry an extra can of oil in reserve.

Follow manufacturer's instructions closely when using the thinner two-stroke oils sold on the European continent.

4. Remember that thruways often tempt the driver to high speeds and that road resistance is small. Use the free-wheeling device and let the car roll with the engine idling, i.e. with the accelerator completely released. When correctly applied, this driving technique will not reduce speed appreciably and will spare the engine and reduce fuel consumption.
5. When driving in mountainous terrain with long downhill slopes, the car should be driven with the free wheel locked to make full use of the braking power of the engine.
6. Do not neglect regular care and lubrication of the car. Follow the recommendations in the Lubrication Chart.
7. Should the carburetor or the electrical system (generator, starter, distributor, etc.) fail to function properly, consult the respective manufacturers (Zenith, Bosch, etc.).



Technical Data

General

Overall length, including bumpers	approx. 4,120 mm (13 ft. 6 in.)
Overall width	1,570 mm (5 ft. 2 in.)
Overall height, empty....	approx. 1,470 mm (4 ft. 10 in.)
Road clearance (2 passengers in front)	approx. 190 mm (7.5 in.)
Track, front and rear ..	1,220 mm (4 ft.)
Wheelbase	2,490 mm (8 ft. 2 in.)
Turning radius	approx. 5.5 m (18 ft.)
Empty weight, incl. fuel, water, tools, and spare wheel	900 kg (2,000 lbs.)

Weight distribution:

Empty	front 54 %
Fully loaded, incl. 5 passengers and 170 kg (375 lbs.) luggage = 1,495 kg (3,300 lbs.)	front 48 %

Hill-climbing performance:

2nd gear	23 %
3rd gear	13 %
4th gear	8 %

Engine

Type	2-stroke, 3 cylinders
Power:	
DIN at 4,250 r.p.m.	38 bhp
SAE at 5,000 r.p.m.	42 bhp
Max torque at 3,000 r.p.m.	8.2 kmp (59 ft. lbs.)
Cylinder volume	841 cc (51.9 cu. in.)
Bore	70 mm (2.76 in.)
Stroke	73 mm (2.87 in.)
Compression ratio, nominal	7.3:1
Lubrication: Oil/gasoline mixture .	1:33 (3 %)

Fuel system

Fuel tank capacity	approx. 43 lit. (11.3 US gals.)
Carburetor, down-draft type	Zenith 34 VNN
Fuel pump, electric	SU, type AUA 89

Cooling system

Capacity, incl. heater	approx 7.5 lit. (2 US gals.)
Temperature, normal	approx. 90°C (195°F)
Thermostat, opens at	approx. 85°C (185°F)

Transmission

Oil capacity, gear-box/differential	approx. 1.4 lit. 1.4 US quarts
Clutch type	single dry plate with spring hub
Plate, outer diameter	180 mm (7 in.)

Gear ratios, total

1st gear	19.3:1
2nd gear	11.4:1
3rd gear	7.0:1
4th gear	4.5:1
Reverse	17.6:1
Differential gear ratio, pinion/crown wheel	5.43:1
Road speed at 1,000 rpm engine speed	
1st gear	6.0 km/h 3.8 m.p.h.
2nd gear	10.2 km/h 6.4 m.p.h.
3rd gear	16.8 km/h 10.4 m.p.h.
4th gear	25.6 km/h 15.9 m.p.h.
Reverse	6.6 km/h 4.1 m.p.h.

Suspension

Maximum spring movement

Front wheels	140 mm (5.5 in.)
Rear wheels	170 mm (6.7 in.)

Shock absorbers

Type, front	hydraulic-telescopic
Type, rear	hydraulic-arm shocks
Maximum stroke, when mounted	
Front wheels	82 mm (3.2 in.)
Rear wheels	106 mm (4.4 in.)

Brake system

Make	Lockheed
Footbrake, 4-wheel, twin-circuit type	hydraulic
Handbrake, rear wheels	mechanical
Brake lining sizes:	
Front	9" × 1 3/4"
Rear	8" × 1 1/2"
Total area	675 sq.cm (105 sq.in.)

Steering mechanism

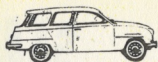
Steering gear ratio	
steering wheel/road wheels..	average 14:1
Number of turns, lock to lock..	2 1/4

Wheels and tires

Rim type	wide base disk wheels
Rim dimensions	4J × 15"
Tire dimensions	5.60 × 15"

Tire Pressure

Inflation pressure	Front	Rear
Light load	24 lbs/sq. in (1.7 kp/cm ²)	24 lbs/sq. in (1.7 kp/cm ²)
Full load	25 lbs/sq. in (1.8 kp/cm ²)	28 lbs/sq. in (2.0 kp/cm ²)



Front Wheel Alignment

Toe-in, measured on rim	2 mm \pm 1 (.08 in. \pm .04)
Camber	$\frac{3}{4}^{\circ} \pm \frac{1}{4}$
Caster	$2^{\circ} \pm \frac{1}{2}$
"King pin" inclination	$7^{\circ} \pm 1$

Electrical system

Voltage	12 volts
Battery capacity	34 amp/h
Starter	0.5 HP
Generator, max.effect	300 watts
max.charge	25 A

Spark plugs:	
Thread	M 18

Heat range:	
Normal driving	Bosch M225T1
Fast driving	Bosch M240T1
Electrode gap	0.8 mm (.032 in.)
Breaker point gap, distributor .	0.3—0.4 mm (.012—.016 in.)
Ignition timing at 3,000 rpm* ..	17° before T.D.C.
Ignition timing, engine stopped, advanced weights retracted..	7° before T.D.C.
Firing sequence (No. 1 is the rear cylinder)	1—2—3

Bulbs

No.	Function	Watts	SAAB No.	Philips No.
2	Headlights, asymmetric	45/40	710872	12620
2	Turn and side lights, front	25/7 or 32/4 C.P.	709683	1034
2	Turn and stop lights, rear	25 or 32 C.P.	715471	1073
2	Tail lights	5	715472	12821
3	Number plate lights	5	708419	12844
5	Control and fuel gauge lamps	2	708434	12829
4	Other instrument lamps	2	715489	12913
2	Courtesy light	5	708419	12844

Fuses

10+2 Fuses, 25 mm (1 in.)	8 amp.
---------------------------	--------

Tools

Jack and ratchet wrench in bag
 Tool bag containing:
 Spark plug and wheel bolt wrench,
 Adjustable wrench,
 Fixed wrenches, two,
 Combination pliers,
 Screwdrivers, two,
 Square key for transmission plugs,
 Brake adjustment wrench.

* The hose for the vacuum-controlled spark-advance should be disconnected.

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Use only genuine SAAB parts

Crankshafts and engines which have been reconditioned by the manufacturer are available as official spare parts on an exchange basis. This system saves time, and exchange prices are so low that a more extensive reconditioning is usually not worthwhile.

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Don't forget to ...

- ☐ Add oil when filling petrol
- ☐ Check coolant in radiator
- ☐ Check elektrolYTE level in battery
- ☐ Grease the car

Your Saab is lubricated by adding oil to the petrol when filling. Only high quality two-stroke oil of viscosity SAE 30—40 shall be used. When refueling at temperatures below -5°C (23°F) the two-stroke oil shall be premixed with an equal quantity of petrol before adding to the tank. Note the higher percentage for the Self-Mixing oil.

Mixing proportions Oil/Petrol

Two-Stroke Oil SAE 30—40	Petrol
Running in=First 2000 miles	
1 quart	6 gallons
1 pint	3 gallons
After 2000 miles	
1 quart	8 gallons
1 pint	4 gallons

Self-Mixing Two-Stroke Oil	Petrol
Running in=First 2000 miles	
1 quart	5 gallons
1 pint	2,5 gallons
After 2000 miles	
1 quart	6 gallons
1 pint	3 gallons