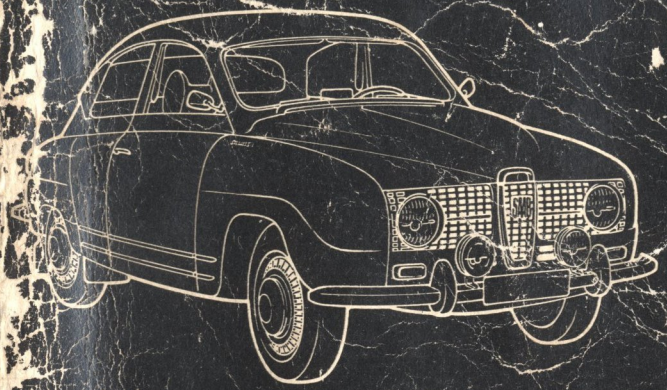

monte carlo 850

SAAB

OWNER'S MANUAL

SAAB Monte Carlo 850

Owner's Manual

SAAB AKTIEBOLAG
LINKÖPING – TROLLHÄTTAN * SWEDEN

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Enbart för spridning utomlands

Foreword

Dear Saab-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 car, we reserve the right to introduce modifications to later cars in the current series.

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

But no car, however well designed and built, gives the desired performance if it is not driven and looked after properly. Neglected maintenance and incorrect driving technique reduces the roadworthiness of the car and shortens its working life. Particularly when the car is new it needs regular servicing by experts. The first maintenance-service is provided free of charge in accordance with the Service Book, which accompanies the car — see also the Service Book for servicing instructions which should be adhered to.

We want to point out how important proper operation and maintenance are for the working life and performance of the motor-car. This is even more important for a sports car from which super-performance is expected. For this reason, please take a personal interest in the maintenance of your SAAB Monte Carlo 850 in order to obtain the most favourable performance and to maintain its qualities.

SAAB AKTIEBOLAG
Trollhättan, August 1965

Introducing the
SAAB AKTIEBOLAG

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 approx. 14,000 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 sweptwing 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 radarequipped 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 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 high rate of climb. This very 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 Viggen multimission 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 an airborne computer and SAAB-developed guided missiles.

SAAB has also developed and test flown a new twin-jet trainer and light attack aircraft, the Saab 105. A privateventure project, the Saab 105 is now subject of an Air Force order for 130 aircraft. 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 marketing a compact general purpose 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.). In 1964, the SAAB group of companies achieved total sales of more than Kr. 1,100,000,000 ($ 210,000,000) a 24 per cent increase over 1963. Automobiles play the dominant part in sales.

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 Monte Carlo 850 is a 2 + 2 seater, two-door, closed sports car.

The engine is a three-cylinder, liquid-cooled, two-stroke engine with separate lubrication system. The sports car has a 4-speed gearbox and a brake system of the twincircuit type, with disk brakes at the front wheels and drum brakes at the rear wheels. The car has coil-spring suspension both at the front and the rear and is equipped with a twelve-volt electrical system.

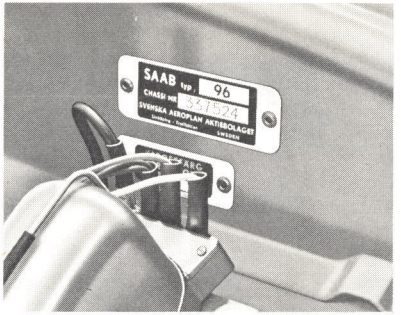

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Figure 1. Location of chassis number

The chassis number is also die-stamped on the left hand side of the cross-beam underneath the front edge of the back seat.
(Always state chassis No. and type of car in enquiries, etc.)

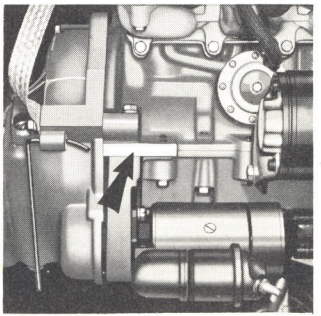

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Figure 2. Location af engine number behind the carburetor

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, trunk and glove compartment. The other two keys fit the door and ignition keyholes only. This system makes it possible to keep the trunk and glove compartment locked when the car is left in for servicing.

Door locks

To lock the door the key is turned counter-clockwise. Then return it to the insert position for removal. The door is then locked.

To unlock the door, the key is turned clockwise. Then return it to insert position and take it out. The door is then unlocked. As the locking and unlocking movements effect the safety button of the door on the left, this locking arrangement makes it possible to lock the door from the inside in tight parking conditions.

Other locks

To lock the trunk the key is given a quarter turn counter-clockwise and then back to insert position for removal. The trunk is then locked.

To unlock the trunk, the key is given a quarter turn clockwise and then back to the insert position for removal. The trunk is then unlocked. To open the lid of the trunk, the handle is turned to the right.

Figure 3. Keys

Master key Door and ignition key

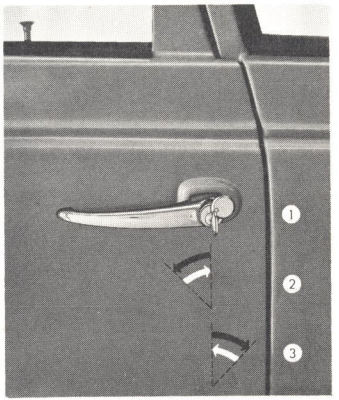

Figure 4. Door lock

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

The glove compartment is locked by turning the key in a counter-clockwise direction. Once unlocked, the glove compartment door is opened by pressing the button.

The ignition lock has the following positions:

L. Locked. The key can only be taken out is in this position.

G. Garage. All current switched off.

K. Driving. Ignition is on. The ignition switch supplies current to flashing indicators, fan motor, windshield wipers, horn and charge indicator light.

S. Starting. This position has a spring return action.

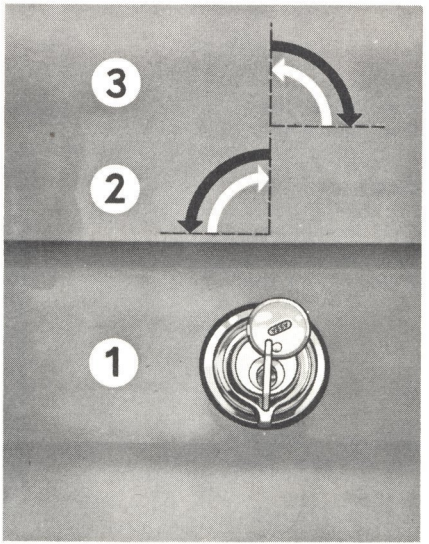

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Figure 5. Lock, trunk

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

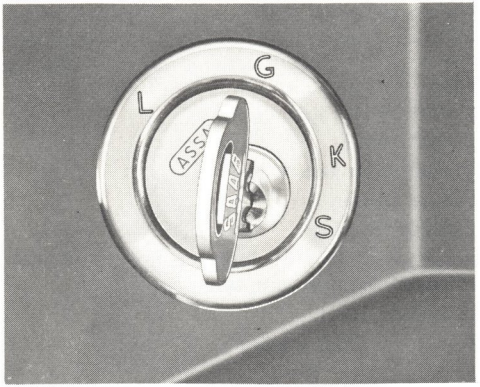

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Figure 6. Ignition lock

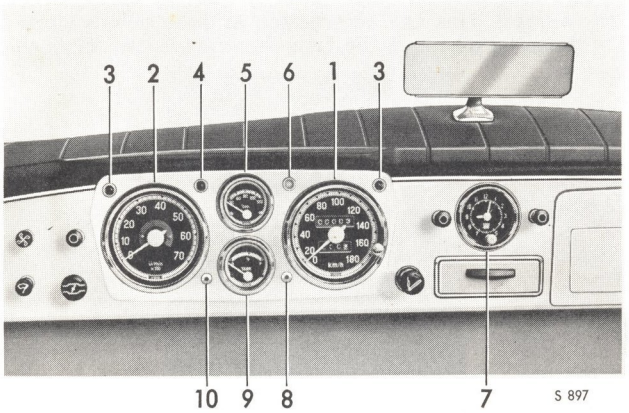

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Figure 7. Instruments

Instruments

1. Speedometer and mileage recorder. The speedometer is graduated from 0–120 m.p.h. (0–180 km/h). The mileage recorder shows the distance covered in miles (kilometers).
2. Revolution counter.
3. Direction indicator repeating light. Flashes green in time with the direction indicators.
4. Oil-pressure indicator light.
5. Coolant thermometer.
6. Charge indicator light. Glows orange when the generator is not charging.
7. Electric clock with setting screw. The regulating screw is at the back of the clock.
8. High beam indicator light. Shows a red (or blue) light when the headlamps are on with the beam undipped.
9. Fuel gauge. The amount of fuel in the tank is shown when the ignition is switched on.
10. Fuel indicator light. Glows red when there is less than 2 US gals. (7 lit.) left.

Other controls and fittings

1. Choke. For details of operation, see "Choke", page 14.
2. Air heater control, see Optional Extras, page 62.
3. Ventilator fan switch, see Figure 11.
4. Switch for extra equipment. (USA: Warning flasher switch).
5. Switch for windshield wipers and windshield washer.
6. Switch for headlamps and instrument panel lighting. When the knob is pulled out to the first stop, the side and rear lights as well as the number plate light are lit. Pulling the knob all the way out lights the headlamps as well. When the knob is pulled fully out, the intensity of the instrument panel lighting can be adjusted by turning the knob.
7. Hood lock.

   The hood hinges upwards and forwards towards the front of the car and is released in the following manner:
   a) Pull out the knob situated under the instrument panel. This opens the hood to the half-locked position.
   b) Push aside the lock mechanism which is situated at the main lock under the front part of the hood. See Figure 8.
   c) Lift up the hood.
8. Horn button.
9. Ashtray. Also provided in rear passenger compartment.
10. Gear lever. For position, see Figure 15.
11. Lockable glove compartment. The door is provided with a detachable plate for the installation of a radio if desired.
12. Direction indicator switch with headlight flasher when moving the lever towards the wheel. Operates also as dimmer switch except USA-cars. For USA-cars only indicator switch.
13. Fog light switch.
14. Spotlight switch.
15. Zero button for trip meter.
16. Cigarette lighter.
17. Set screw for clock.
18. Free wheel control. To lock out the free wheel action, pull the handle right out. See page 16.
19. Handbrake.
20. Dip switch. (USA-version).
21. Seat adjustment. When the catch is pressed down, the seat is released and can be moved forward or backward as desired.
22. Control for adjusting angle of seat backrest.
23. Armrest. This can be adjusted to three different positions by means of the fastening screws. See Figure 9.

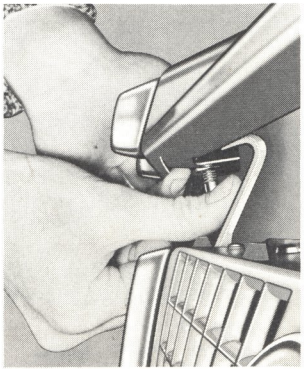

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Figure 8. Hood catch

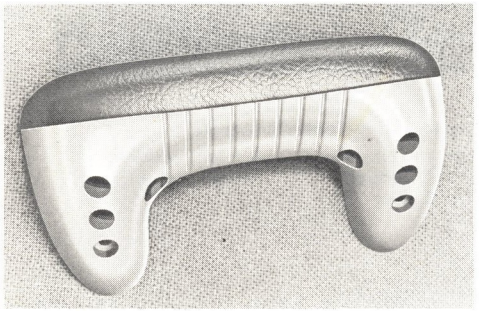

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Figure 9. Arm rest, adjustable

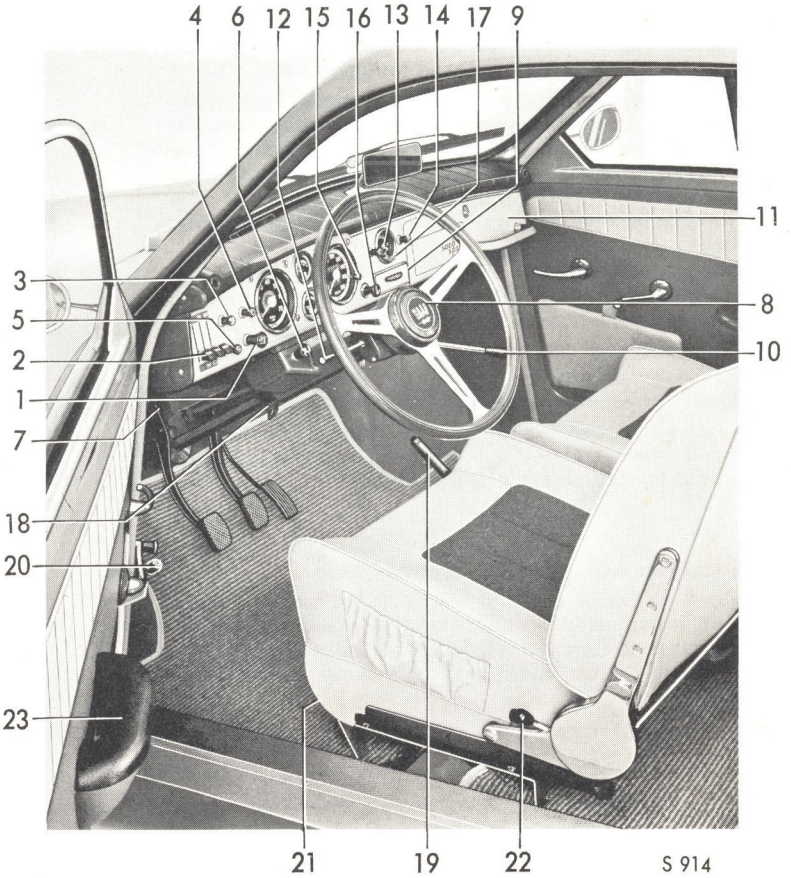

Figure 10. Controls

Ventilation and heating controls*

The levers shown in Figure 11 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 preselected 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 DEFR 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: full speed is obtained when the knob is fully pulled out, and half speed when the knob is in the first position.

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 be used when the car is stopped or moving at low speed.

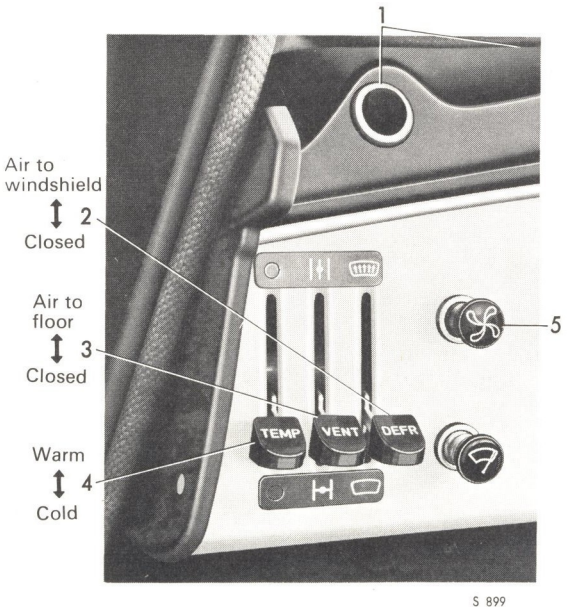

Figure 11. Heater controls

1. Defroster openings
2. Air control, defroster
3. Air control, floor
4. Heat control
5. Fan motor switch

* Heating system is an optional extra

The fresh-air heater is made full use of, if the windows of the car are shut. The vent channels in the rear of the car afford constant circulation of air, see fig. 12.

When driving on fine summer days, an increased flow is called for and brought about by opening the windows as required. Firstly the opening rear side window.

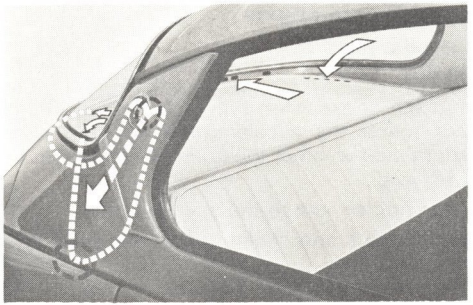

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Figure 12. Vent channels

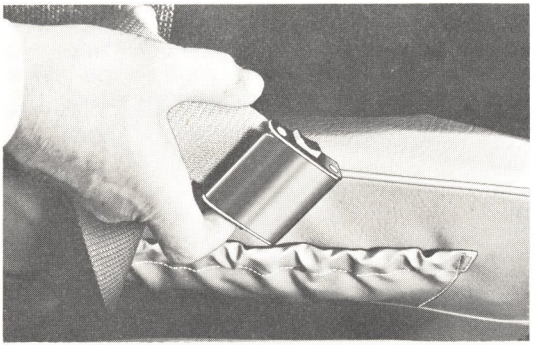

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Figure 13. Pocket for safety belt.

S 905

Figure 14. Safety belt

Attachment points in the floor in front of the back seat cross-beam permit the use of lap-and-shoulder belts.
When the safety belt is not being used, place its inner part in the side-pocket of the seat, fig. 13.

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 car 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 middle carburetor is equipped with a cold start mechanism, or choke. When the control knob is pulled out, a special jet combination in the carburetor is connected supplying the engine with a richer fuel mixture than the normal.

The choke has two positions, the outer with spring action return. To start the car when the engine is cold, pull out the knob all the way. It can be left in the intermediate position while the engine is warming up, but as soon as the engine runns 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 fully and hold in this position. Do not touch the accelerator before the engine has started. In mild weather the knob needs only to be pulled out half way.
4. Turn the ignition key to the start position.
5. Ignition key to K and choke to half way position as soon as the engine fires.
6. When the motor starts, increase the engine speed to approx. 2,000 r.p.m.
7. Release the clutch.
8. Push the choke knob right in as soon as the engine has warmed up enough to run on normal fuel mixture. Avoid idling with the choke knob in the pulled-out position. 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 must not be operated when the engine is being started since this puts the choke mechanism out of action.

Push the choke knob right in as soon as possible.
If the engine is stopped and the car left outdoors 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 outdoors 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. To prevent this happening, always keep the accelerator pressed fully down and let the starter motor run for 10—15 seconds.
Do not release the accelerator before the engine starts. If the engine does not start after two or three attempts, the spark plugs should be taken out and wiped dry.
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 your 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.

In the gear box all forward gears have synchromesh. To put the engine in reverse, move the lever away from the steering column and then lift it towards the steering wheel pulling it backward and downwards. The positions of the different gears are shown in Figure 15.

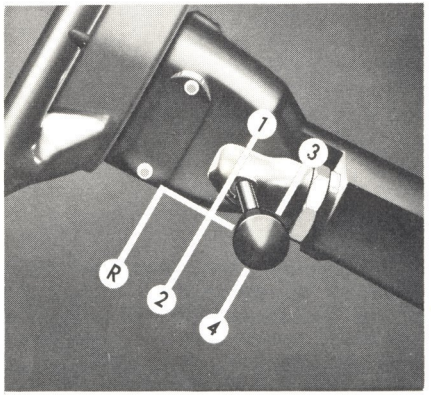

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Figure 15. Gear positions
R = Reverse

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 fig. 10.
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.

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 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 and pads with very little tendency to fade, i. e. they tolerate high temperatures without any serious loss of effect. When changing brake linings or pads, therefore, check that the replacements fitted are original SAAB components.

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 speed must not be allowed to exceed about 45 m.p.h. (75 km/h) in third gear. 30 m.p.h. (45 km/h) in second gear and 15 m.p.h. (25 km/h) in first gear.

Steering characteristics

The Saab 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 manoeuvre, the understeer makes it very easy to check the skid. One of the ways in which understeer has been achieved is the weight distribution, which with two people in the front seat is 58 % on the front wheels.

The front wheel drive of the Saab in combination with its ideal weight distribution gives the vehicle maximum traction even in bad road conditions. The car remains 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

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 first 2,000 miles (3,000 km) the car must not be driven at full throttle, nor should the speed exceed 70 m.p.h. (110 km/h) except for very short periods. However, this does not mean that the engine should be allowed to labour — when going uphill, for example — before changing down. Always drive the car so that the engine turns over at a sufficiently high speed to prevent it seeming strained.

Avoid driving with full throttle for the first 2,000 miles (3,000 km).

Driving economy

To economize to the full on fuel consumption and wear the Saab, 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 practice 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 behaviour of the car.

Useful hints

1. Be sure that the ignition is switched off when the engine is not running; otherwise the ignition coil and breaker points are 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. Do not interfere with the carburetor jet settings. Any necessary adjustment or trimming must be done by qualified mechanics.
5. Keep the battery well charged at all times. A poorly charged battery cannot start the engine quickly enough.
6. In wintertime steps should be taken to prevent ice from forming in the cylinders of the door and trunk locks. Most service stations carry preparations suitable for this purpose. However, should a lock cylinder be frozen up, care must be taken not to break the key – melt the ice by warming the lock in some way.
7. The running temperature of the engine should be kept at about 80–85° C (175–185° F). Screening the radiator grill in winter is not recommended except where the vehicle is mainly used for driving in towns or in similar conditions necessitating repeated stopping and cold starting. However, where the temperature is below —20° C (—4° F) the radiator should be screened.

8. The engine must be kept in good trim. 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.

   Major maintenance work should be carried out by an authorized SAAB service garage.

9. The brakes must always be maintained in good condition. Check that:
   a) the play in the brake pedal is not larger than normal.
   b) the brake pedal neither feels spongy nor sinks under load.
   c) the braking power is good.
   d) the car does not drag to one side when braking.

If any of these faults are detected, have the car inspected by an authorized SAAB service garage.

Maintenance

Fuel

For the car is recommended a fuel of minimum 95 octane. Do not use benzole – mixed fuels.

During the winter it is recommended that 0.2 % Desolite K be regularly added to the gasoline if the car is driven intermittently in such a way that the engine never has time to get really warm before each new start, i. e. frequent cold starts.

Oils

As far as possible two-stroke oil of a good quality should be used, for example SAAB self-mixing two-stroke oil, ordering number 785216.

At temperatures below −10° C (14° F) it is advisable to follow our oil recommendations. Leaving the car out of doors or driving in such temperatures may cause the lubricating oil to become so viscous that the pump cannot operate satisfactorily. At temperatures lower than the above mentioned self-mixing two-stroke oil must be used.

Storage

If the car is to be laid up for a long period (during the winter, for example), it should be greased beforehand. In order to prevent rust and similar damage to the engine, the car should be driven between 30 and 150 miles (50—250 km) on a fuel to which 0.5 % Desolite K has been added. If required, the coolant should be drained off. In addition, the battery should be taken out and stored wellcharged at room temperature. The protective effect of Desolite K is increased if the engine is given full throttle for a few moments before the ignition is switched off.

Fuel system

The fuel system has filters at the pump and at the inlet nipple to each carburetor. The pump filter is accessible when the pump cover with gasket has been removed.

Lubrication system

The engine has a special lubrication system which involves no special maintenance problems. To remove impurities and condensed water from the oil tank, the oil should be drained off through the plug hole at the bottom of the tank once a year.

Cooling system

Inspect your car regularly to see that the cooling system contains sufficient 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 39.

Brake system

For reasons of safety, always follow the instructions in the Service Book concerning the checking of the braking system and of the liquid level in the containers for the braking and clutch systems. Never drive with the handbrake on.

Brake fluid

Even the best brake fluid deterioates in the course of time, as a result of oxidation and absorption of water. Therefore when participating **in contests and/or driving on mountain roads** – remember to change the fluid, as soon as the car has run for more than a year. This work must be carried out by an authorized service garage. When changing or topping up brake fluid make sure that you get fresh, genuine fluid of the prescribed quality.

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

Dimension 155 × 15"

Inflation Pressure	Front	Rear
Light load	22 lbs/sq.in. (1.5 kp/cm²)	20 lbs/sq.in. (1.4 kp/cm²)
Full load	24 lbs/sq.in. (1.7 kp/cm²)	24 lbs/sq.in. (1.7 kp/cm²)

For fast driving the tire pressure should be 24 lbs/sq. in. (1.7 kp/cm²) both front and rear, irrespective of load.

Dimension 6.25–15 GP

Inflation Pressure	Front	Rear
Light load	20 lbs/sq.in. (1.4 kp/cm²)	18 lbs/sq.in. (1.3 kp/cm²)
Full load	20 lbs/sq.in. (1.4 kp/cm²)	20 lbs/sq.in. (1.4 kp/cm²)

Maintenance service

Where the servicing for the SAAB Monte Carlo differs from that for other models, this is pointed out in the voucher booklet accompanying the car.

Lubrication Instructions

General

Proper lubrication is essential to good maintenance and must not be neglected. The car should be greased every 6,000 miles (10,000 km) or at least twice a year. For this service SAAB Special chassis grease should be used and a careful check carried out to see that the rubber bellows and packings are free from defects. To ensure that this greasing is done properly it is included in the maintenance service detailed in the Service Book to be carried out regularly at intervals of 6,000 miles (10,000 km). This allows the maintenance service and the greasing to be done simultaneously by an authorized SAAB service garage, so that the car is off the road for the shortest possible time. Only use SAAB Special chassis grease for greasing.

NOTE: If SAAB Special chassis grease is not used, then greasing must be carried out more often and the intervals between greasings reduced to 3,000 miles (5,000 km). SAAB Special chassis grease must not be mixed with ordinary chassis grease — either one or the other must be used exclusively.

Check the oil level in the gearbox every 6,000 miles (10,000 km) by unscrewing the oil level plug 2 (see Figure 31). 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.

When the car has run 1,200 miles (2,000 km), the gearbox oil must be changed and the magnet plug cleaned. This should be repeated every 12,000 miles (20,000 km). Drive the car for 15—20 minutes before draining out the old oil and then flush with flushing oil. Fill with approx. 3 U. S. pints (1.4 litres) of oil until the oil runs out of the oil level plug opening. EP SAE 80 oil may be used in the gearbox throughout the year.

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.

Lubrication Chart, intervals 6.000 miles (10.000 km) or twice a year

Index	Lubrication points	Number	Lubricant	Instructions
1	Upper and lower ball joints, L and R	4	SAAB Special Chassis grease	Grease gun.
2	Steering gear and drag rod ends	3	SAAB Special Chassis grease	Grease gun. Steering wheel turned fully to the left
3	Accelerator	4	SAE 40 oil	Oil can
4	Hydraulic brake system	1	Lockheed Brake Fluid No. 328, or an equivalent conforming to (minimum) Specification SAE 70 R 3.	Check, intervals of max. 3 months*
5	Hydraulically operated clutch	1	»	Check, intervals of max. 3 months*
6	Handbrake links	3	SAE 40 oil	Oil can
7	Hinges and locks	9	SAE 40 oil	Oil can
8	Door stops	2	Vaseline	Grease
9	Distributor shaft	2	SAE 40 oil	Oil can
10	Distributor cam	1	Bosch Ft 1 v 4	**Grease felt sparingly**
11	Gearbox	1	EP oil SAE 80 (3 US pints = 1.4 litre)	**Check every 6.000 miles (10.000 km), change every 12.000 miles (20.000 km)**
12	Latch, rear side window	2	Vaseline	Grease
13	Front wheel bearings	2	SAAB Special Chassis grease	Re-pack at overhaul
14	Rear wheel bearings	2	SAAB Special Chassis grease	Re-pack at overhaul
15	Drive shaft, outer joint, L and R	2	Universal- or chassis grease containing 3–5 % molybdenum disulphide	Re-pack at overhaul
16	Drive shaft inner joint, L and R	2	SAAB Special Chassis grease	Re-pack at overhaul
17	Engine, when fueling	1	Two-stroke oil, see recommendations on page 20. Wintertime below 14°F (−10°C) self-mixing two-stroke oil must be used. NOTE! Multigrade oil with viscosity SAE 10 W-30 is not allowed.	Check, replenish oil tank The tank holds approx. 1 US gal (4 litres). Service quantity 3 litres (0.8 US gal.)

* Concerning brake fluid exchange see page 21.

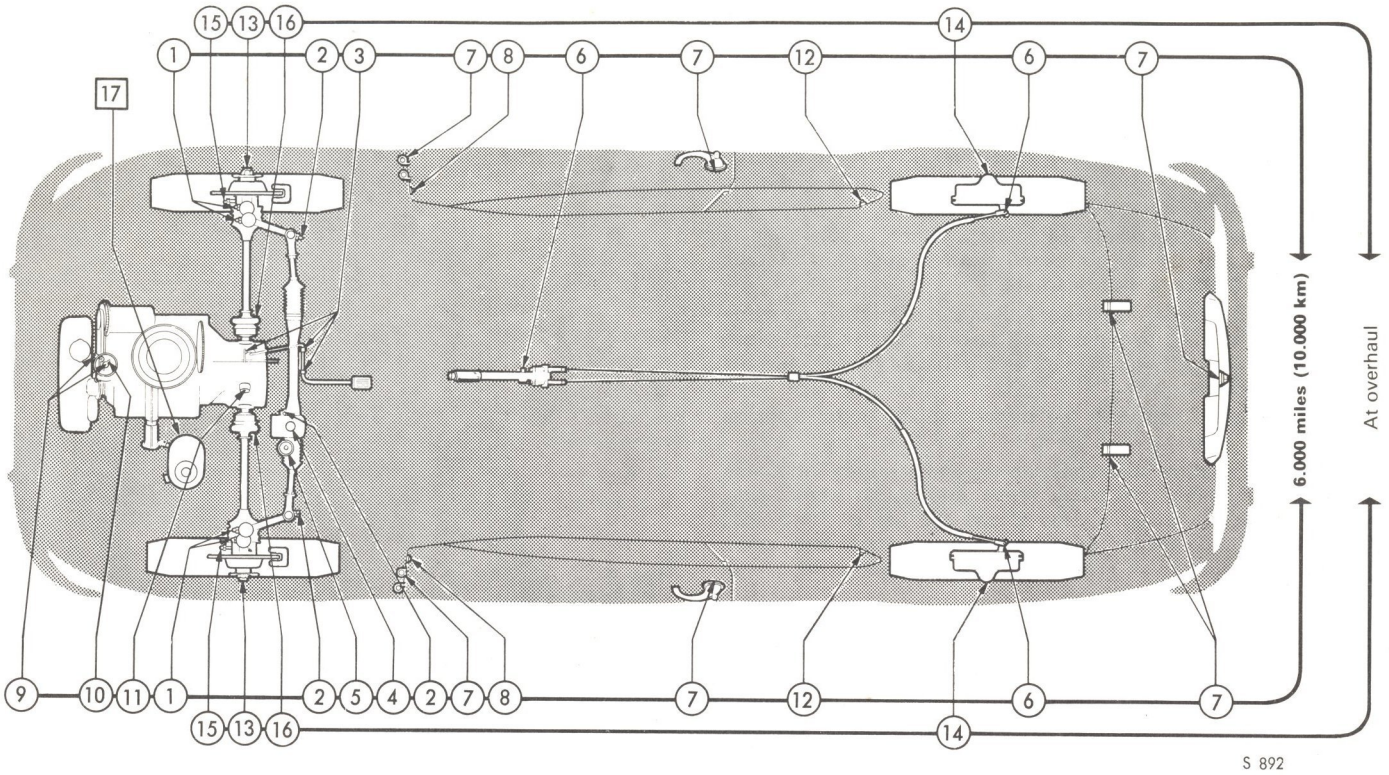

Figure 16. Lubrication points.
Numbers refer to the Lubrication Chart.

Description and Functioning

Engine

General

The Saab Monte Carlo 850 is powered by a three-cylinder liquidcooled, two-stroke engine employing the Schnürle principle of charging through the crankcase.

The engine has separate lubrication, which implies that oil is distributed by an oil pump from a separate oil tank direct to cylinders and bearings.

The cylinder block and lower half of the crankcase are made of cast iron. The cylinder-block casting houses steel pipes which conduct lubricating oil to the three cylinders and the four main bearings.

The cylinder head with the upper coolant outlet is made of a light alloy.

The crankshaft is built up as an extremely sturdy fabricated unit, comprising six crank webs and seven crank pins, assembled by press fit. This allows the use of single ball bearings and single roller bearings as main and crank bearings respectively. The crankshaft is carried in four main bearings.

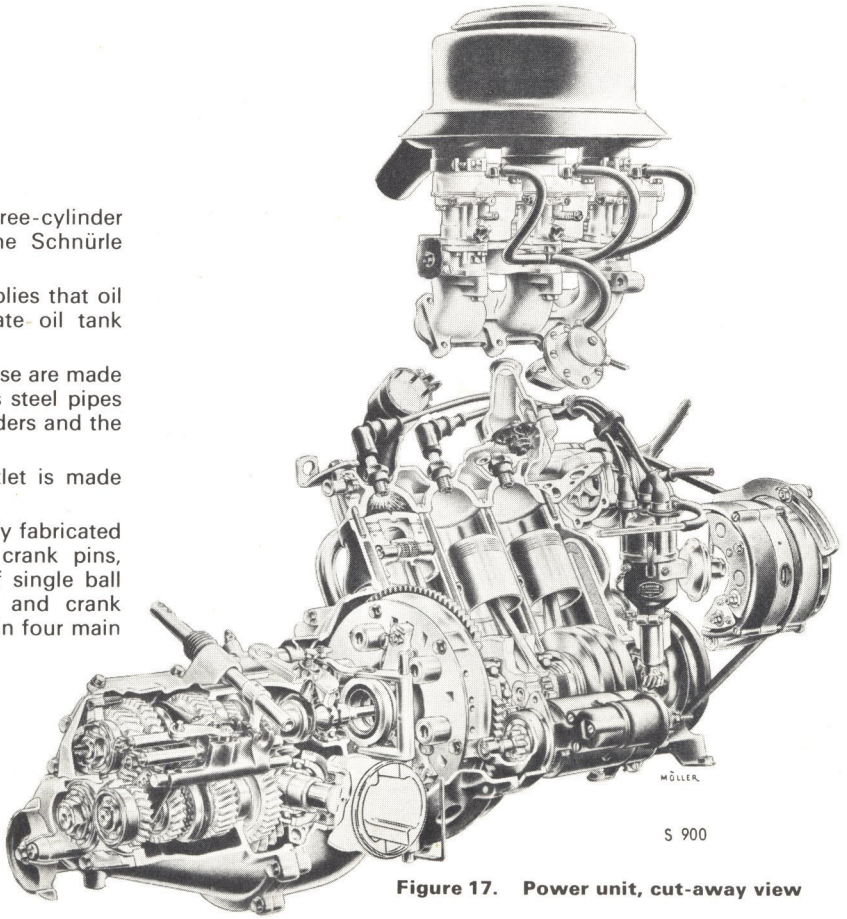

Figure 17. Power unit, cut-away view

Seals of piston-ring type are used to seal off the three crankcase compartments from one another at the crankshaft and outwards. Each seal comprises two piston rings seated in grooves. The actual piston ring does not rotate and works, in principle, as a labyrinth seal.

The connecting rods are drop-forged and hardened. Their ground surfaces form direct races for the connecting rod bearings and piston-pin bearings. The connecting-rod bearing comprises rollers which are guided by a roller cage, while the piston-pin bearing is of the needle type. The connecting rods are piston-guided, implying that they are guided axially in the piston, while they have a big clearance between the crank webs in the connecting-rod bearing.

As reconditioning of the crankshaft involves the use of special tools and necessitates very great precision, this task should be entrusted to the makers.

For this reason, only a complete crankshaft is obtainable as an exchange unit.

The thick-bottomed pistons are of all-aluminium type. They are fitted with two compression rings and an oilwiper.

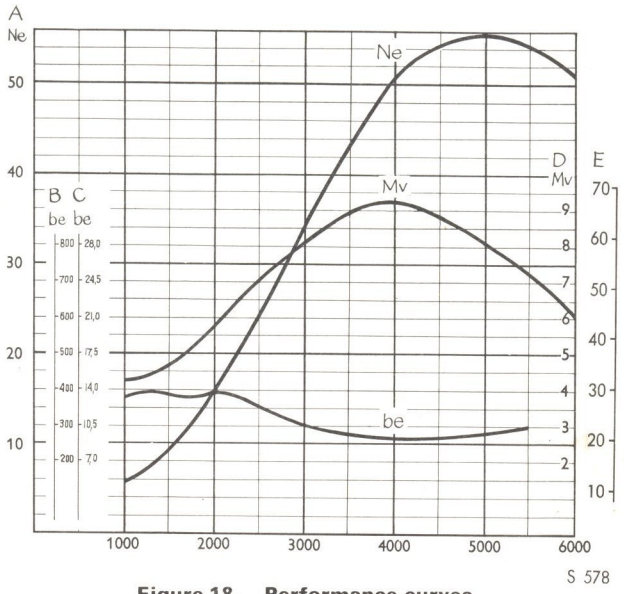

Figure 18. Performance curves.

The letters refer to the figure.

A = Power hp
B = g/hph
C = oz/hph
D = Torque kpm
E = Torque ft/lbs
Ne = Power, DIN
Mv = Torque
be = fuel consumption per hph

Lubricating system

The moving parts of the engine are lubricated with oil from a separate tank, placed to the left of the engine. This tank holds about 3 liters (0,8 US gallons), sufficient for 1500–2000 kilometers (900–1200 miles). A glass gauge on the outside of the tank shows the oil level and a warning light on the instrument panel lights up if the supply of oil should fail for any reason. An oil pump, driven by the engine crankshaft, pumps the oil via separate ducts in the engine housing to each of the cylinders and main bearings. From the main bearings the oil is forced on to the big end bearings and also splash lubricates the cylinder walls. The drive to the oil pump also turns the distributor, its revolutions being reduced by an epicyclic gear in the pump itself. The cylinder and the piston rotate slowly at the same time as the piston expels the oil. During this rotation each oil duct is exposed in turn. The oil pump piston is steered by a cam.

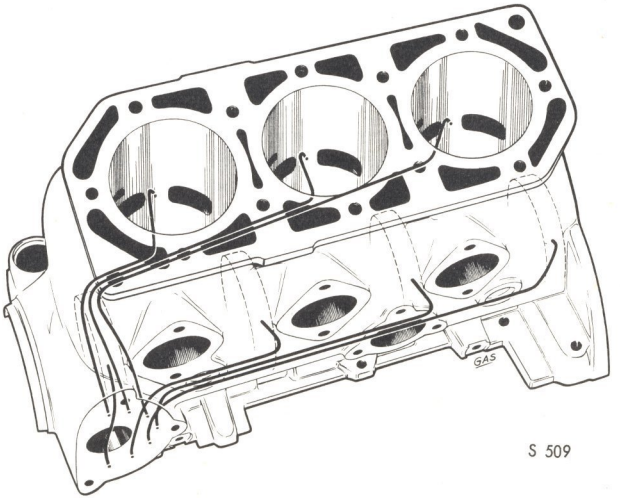

Figure 19. Cylinder block with oil ducts

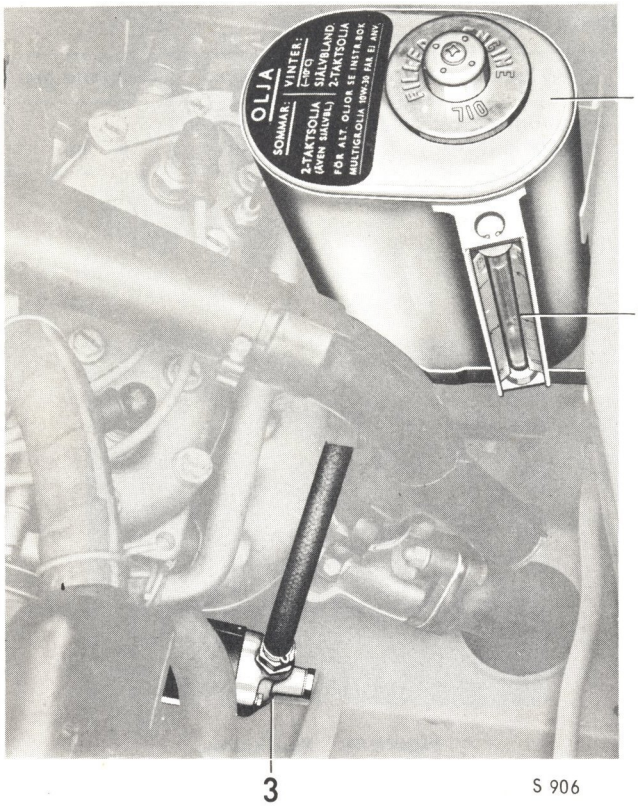

Figure 20. Lubrication system

1. Oil tank
2. Glass gauge
3. Oil pump

The engine has a built-in safety clutch in the oil pump and distributor transmission. If the oil pump cannot operate satisfactorily, for instance due to cold weather, this safety clutch will disengage the gear and make the starting of the engine impossible. When the trouble which caused the safety clutch to come into operation has been eliminated (e.g. by warming up the pump and oil tank), the gear should be put back and locked in the correct position before attempting to start the engine again. This is done by removing the distributor cap and braking the rotor while the engine is turned round slowly by hand with the aid of the fan or the fan belt.

The oil warning system consists of an oil gauge fitted on the oil pump, a relay and a red warning light on the instrument panel. The relay has a delayed action, which means that the light may be glowing red up to 1 1/2 minutes after the starting of the engine without there being any fault in the lubrication system.

The spark plugs for the Monte Carlo 850 are not of the conventional type. This means that some of the types of spark plugs have no side electrodes. In such cases where there are no side electrodes the spark gap is the distance between the center electrode and the lower part of the body of the spark plug. Should the spark plug gap exceed 1.2 mm (0.05 in.) the spark plug should be changed.

Spark plugs without side electrodes must not be cleaned by sand blasting or by washing in petrol, etc. If a plug is dismantled for inspection or cleaning, a wire brush should be used after which the plug should be cleaned with compressed air.

NOTE: On no account must spark plugs other than the recommended types be installed as they may cause damage to the engine.

As the ignition voltage in the SAAB Monte Carlo 850 is comparatively high, it is most important that insulating components, such as the distributor cap, ignition coil, cables and spark plugs be kept free from dust and dirt.

Spark plugs

Used for:	Type	Electrode gap
Hard driving Normal driving	Champion UK-16-V Champion UK-7	– 0.7 mm

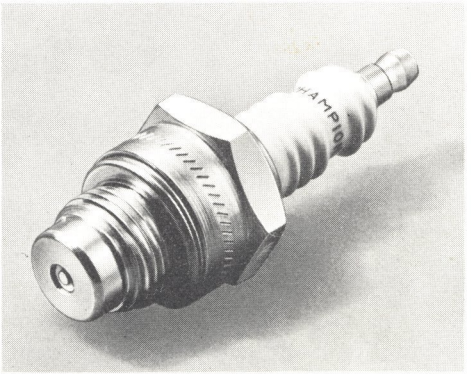

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Figure 21. Spark plug

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 23, the firing sequence of the cylinders is 1–2–3 (rear middle-front).

It is essential that the contact gap be checked after 6,000 miles (10,000 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 6,000 miles (10,000 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 22, and move the stationary point until the correct gap is obtained. Tighten lock screw when gap is correct.

The ignition distributor is lubricated with oil at the oil cup situated on the outside of the distributor housing and at the felt pad in the shaft under the rotor arm. The felt which lubricates the distributor cam is to be greased **very sparingly** with Bosch special grease. The same kind of grease should be used to grease the distributor arm bearing, when changing the contact points.

* Should be carried out by an authorized service garage.

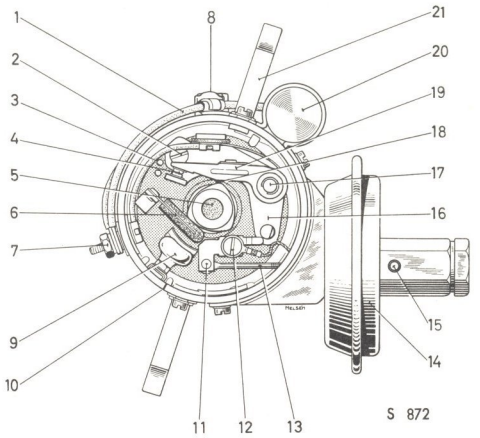

Figure 22. Ignition distributor

Rotor and cover removed

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

Note

Do not over-lubricate the ignition distributor.
When fitting the rotor, see that the lock screw spring washer locks firmly.

After adjustment of the contact gap, the ignition timing must be checked.

> **Important**
>
> All high tension insulators must be kept clean and dry. Clean every 6,000 miles (10.000 km): ignition coil bakelit cap, distributor cap (inside and outside), ignition cables and spark plug insulators.

*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 20° before T.D.C.

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

* Should be carried out by an authorized service garage.

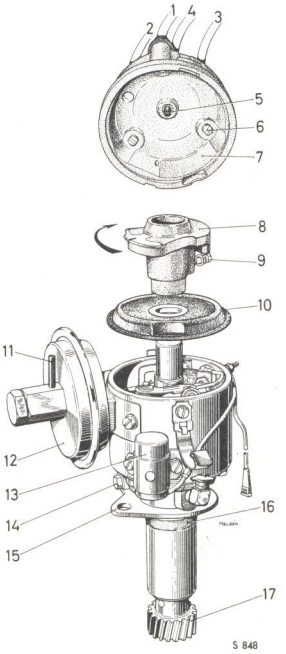

Figure 23. Ignition distributor

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

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 one on the cylinder block corresponding to 10° before T.D.C. for Cylinder No. 2.
3. The indexes on the rotor should then coincide with the index on the distributor housing next to the guide lug on the tension spring attachment, 10 in Figure 22.
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 24, 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.

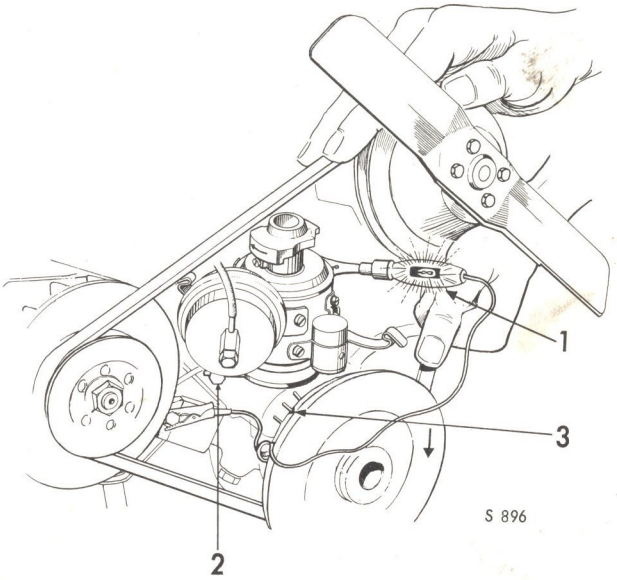

Figure 24. Adjustment of the basic timing

1. Test lamp
2. Lock screw
3. Index for ignition timing

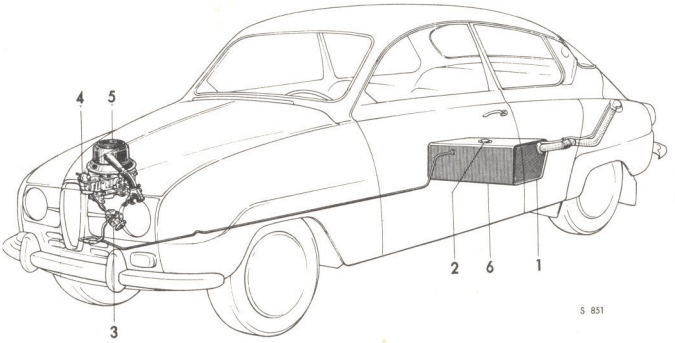

Figure 25. Fuel system

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 system of the car consists of tank, fuel pipe, pump, fuel hose and carburetor with air filter.

The fuel tank is situated under the front part of the floor of the luggage boot. The electrical fuel tank gauge is fitted in the top of the tank. The fuel pipe runs along a groove in the floor to the right-side wing.

Fuel pump

The fuel pump is of the membrane type and is mounted on the engine crankcase. The changes in pressure in the crankcase actuate the membrane of the pump, and in this way fuel is pumped to the carburetor.

The fuel pump is provided with a filter which can be taken out after removing the lid of the pump. The filter should be cleaned every 12,000 miles (20,000 km), or whenever impurities in the fuel are suspected. When remounting the pump, make sure that the gasket between the top and the filter is in position.

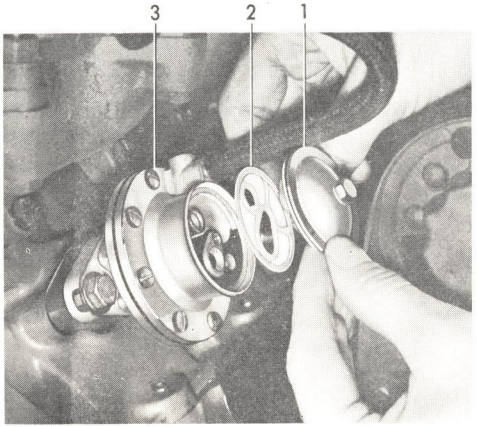

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Figure 26. Fuel pump

1. Cover with gasket. 2. Filter. 3. Pump body.

Air-filter

Air entering the carburetor passes through a suction silencer containing the air-filter element, which is secured to the top of the outer carburetors by clamp screws.

The air-filter in the suction silencer consists of a disposable element, which should be changed every 12,000 miles (20,000 km), or at least every two years. When driving on dusty roads, the filter element must be changed at shorter intervals.

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.

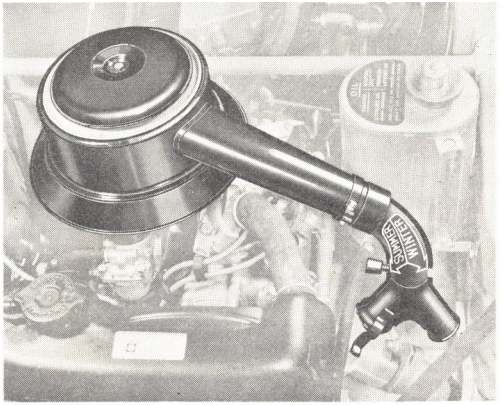

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Figure 27. Pre-heater

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° 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.

The pre-heater is fitted with a draught valve which can be put in two different positions, "Winter" and "Summer". The induction air is preheated when the valve (Figure 27) is put in the "Winter" position. The valve should be adjusted when the temperature for any length of time is above or below 10° C (50° F).

Above 10° C (50° F) "Summer" position
Below 10° C (50° F) "Winter" position
NOTE: The switch must always be either in the "Summer" position or the "Winter" position — intermediate setting must not be used.

Carburetor

The carburetor unit Solex 34 W 2 (Z) consists of three down-draft carburetors, mounted on a common throttle housing. The throttle housing unit has a through shaft, on which the three throttle valves are fastened.

The carburetors have jet combinations for four different systems, i.e. high speed, low speed, idling, and cold start systems. Possible alterations of the jet combination should be carried out by authorized garages only. The following data are applicable to a normal jet combination. The figures in brackets refer to fig. 28.

(The two outer carburetors are marked "2", the middle one "1". As to the numbering of the carburetors compared with the cylinder sequence, see fig. 28.)

High speed system (main system)	
Main jet carburetor (1 and 2)	120 A
Emulsion tube jet (3)	200
Emulsion tube (4)	21
Low speed system	
Fuel jet, by-pass (5)	55
Idling system carburetor 1 (middle one)	
Fuel jet (6)	35
Cold start system carburetor 1 (middle one)	
Starter fuel jet (7)	170
Starter air jet (8)	3,5

It is most important that the carburetors be kept free from impurities. For this reason every carburetor feed pipe connection is provided with a filter, which should be inspected at regular intervals. The construction of the Solex carburetor permits the removal of all the jets except for the air jets of the low speed and the idling systems.

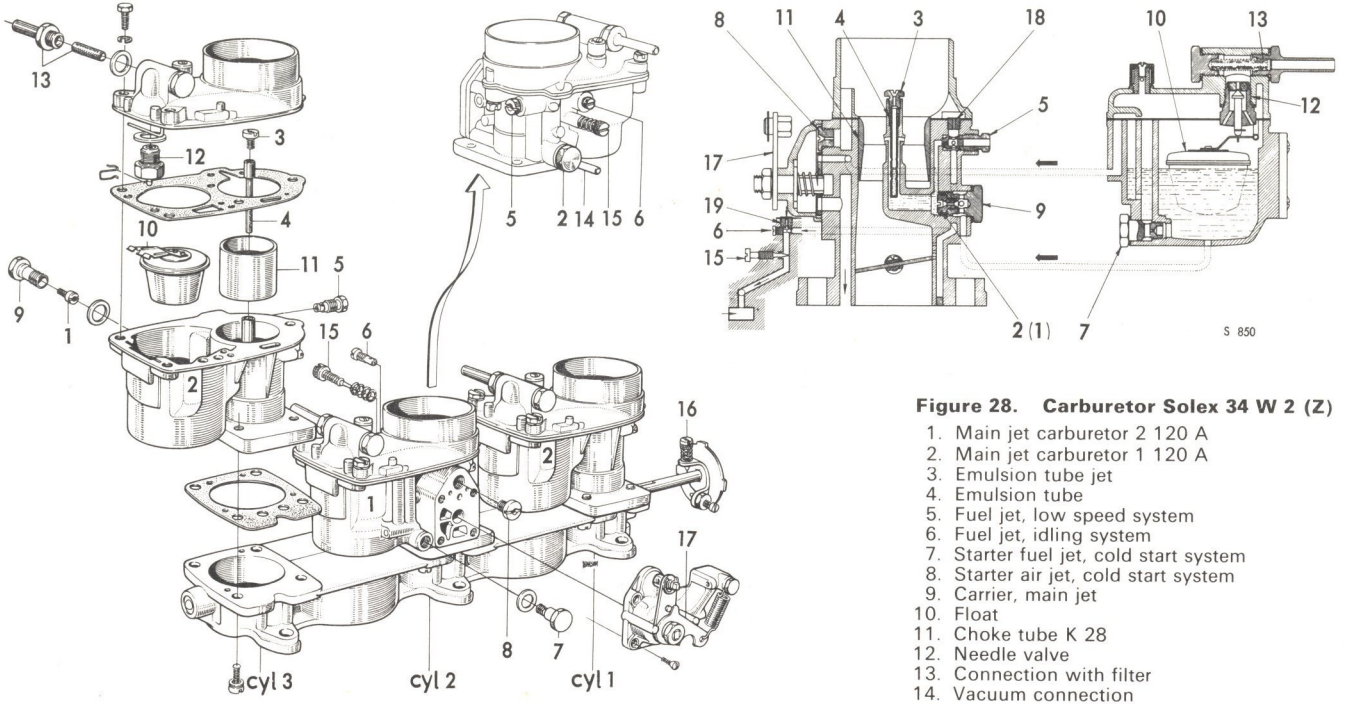


Figure 28. Carburetor Solex 34 W 2 (Z)

1. Main jet carburetor 2 120 A
2. Main jet carburetor 1 120 A
3. Emulsion tube jet
4. Emulsion tube
5. Fuel jet, low speed system
6. Fuel jet, idling system
7. Starter fuel jet, cold start system
8. Starter air jet, cold start system
9. Carrier, main jet
10. Float
11. Choke tube K 28
12. Needle valve
13. Connection with filter
14. Vacuum connection
15. Air regulating screw, idling mixture
16. Adjusting screw, idling
17. Cold start control
18. Air jet, low speed system 80
19. Air jet, idling system 80

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

Adjust the engine idling speed while the engine is warm.

1. Allow the engine to idle.
2. Adjust the idling speed to about 600—750 rpm with the slow-running adjustment screw.
3. Adjust the volume-control screw on the carburetor 1 to give the highest idling speed.
4. Readjust the slow-running adjustment screw until a suitable idling speed, i.e. 600—750 rpm, is obtained. Then recheck the position of the volume-control screw as above.

Repeat this procedure until the correct idling speed is obtained.

It is better to screw in the volume-control screw too far than too little.

After setting the volume-control screw properly for idling (see instructions above), check for getting the right answer at acceleration. If noticing – when opening the throttle at a moderate speed – that the engine shows temporary to reduce its number of revolutions, slacken the volume-control screw enough to prevent the number of revolutions from being reduced. To meet this requirement, it might prove necessary to make the gap of the volume-control screw wider by 1/2–1 turn. Then, adjust the idling speed as prescribed by means of the throttle screw.

Cooling and heating system*

General

The capacity of the cooling system, including the fresh-air heating element, is approx. 1 3/4 U. S. gals. (6.5 litres). The radiator is fitted with a pressure cap and is situated in front of the engine. Until the engine has reached its proper operating temperature, the radiator inlet is closed by a thermostatically controlled valve and the coolant circulates through the engine and the fresh-air heater until it has reached a temperature of approx. 180°F (82°C), when the thermostat begins to open. The coolant pump is a centrifugal pump which is situated on the front part of the engine and coupled to the cooling fan. The pump and the fan are driven by the engine by means of a V-belt. When draining off the coolant, the pressure cap must be loosened. The greatest care must be exercised when removing the pressure cap if the coolant is boiling. Loosen the cap carefully and release any steam before taking the cap off completely. When the radiator has been filled up with new coolant, start the engine and run it for approx. 20 seconds at a moderate speed, until coolant escapes through the opened bleeder screw of the heat exchanger. Top up with coolant, as required. Only clean coolant is permissible. Never fill the radiator with cold water if the engine is hot, or the cylinder block may crack.

The air bleeding when filling the radiator with coolant takes place through a bleeder valve alongside the thermostat.

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.

* Heating system is an Optional Extra.

Cleaning the cooling system

The coolant should be changed twice a year, in the spring and in the fall, and the cooling system itself should be flushed out. At the same time check all the hoses and hose connections replacing defective parts where necessary. 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.

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 lines 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, and it should be replaced once a year.

Ethylene Glycol (US gals.)	Volume % approx.	Freezing Point °C	Freezing Point °F	Boiling Point °C	Boiling Point °F	Specific Gravity
1 US quart	15	— 7	21	101	214	1.020
2 US quarts	31	—18	0	102	216	1.035
3 US quarts	46	—33	—28	105	221	1.053

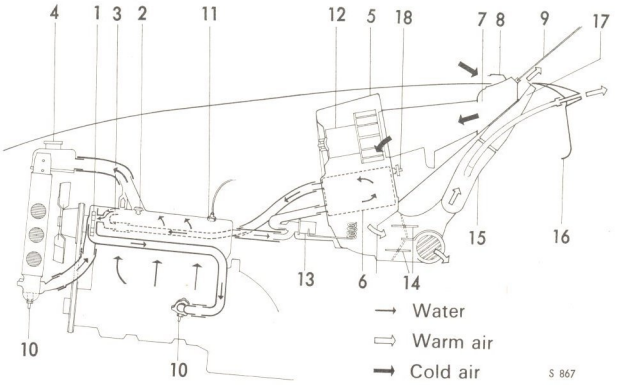


Figure 29. Cooling system with fresh-air heater

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

Clutch

General

The clutch is operated by a hydraulic system which consists of a hydraulic cylinder connected to the clutch pedal, as well as a servo-cylinder which operates the clutch.
The main cylinder is equipped with a container which must be kept filled with brake fluid up to the level mark on the outside of the container.

The clutch pedal should have a play of approx. 1 3/8 inch. (35 mm). This is adjusted with the adjusting screw (Figure 30). By turning this screw, the play is reduced.

Do not forget to tighten the locking nut.

Bleeding the Clutch System

If the clutch does not disengage, this may be due to air in the hydraulic system. In such a case, bleed the system in the following way:

1. Check that the container is filled with brake fluid.
2. Connect a suitable hose to the servo-cylinder bleeder screw and immerse the other end of the hose in the brake fluid container of the master cylinder.
3. Press down the clutch pedal and open the bleeder screw. Immediately before the pedal reaches its lowest position, close the bleeder screw. Repeat the above procedure until the brake fluid coming out of the system is free from air.
4. Refill the container with clean brake fluid up to the level mark and check that the bleeder screw is properly tightened.

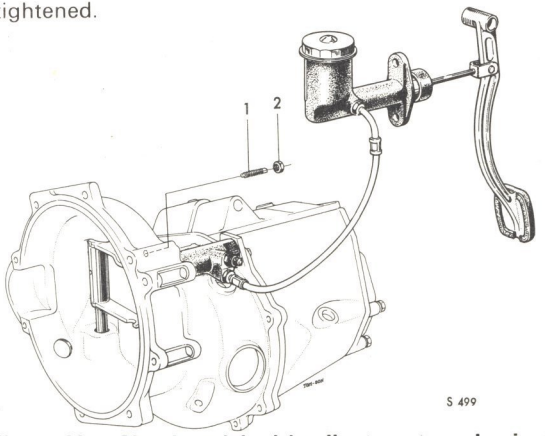


Figure 30. Clutch pedal with adjustment mechanism

1. Adjusting screw
2. Lock nut

Transmission

The transmission is contained in a box with three compartments. The rear section containing shafts, cogwheels 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 release 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. The rear gearwheel is a sliding pinion. All 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 14 and 15.

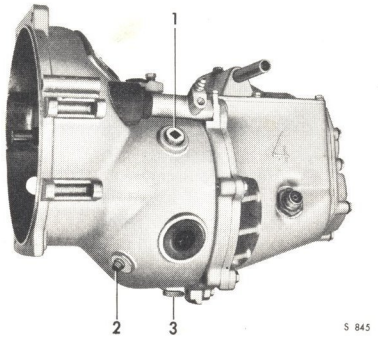


Figure 31. Transmission plugs

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

Brake system

The Monte Carlo 850 is equipped with disk brakes at the front wheels and drum brakes at the rear wheels.

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 disk brakes are self-adjusting and thus brake adjustment need be carried out only at the rear wheels.

The rear wheels have double-acting brake cylinders.

In order to prevent the rear wheels from locking too soon, the brake lines to the rear wheel brakes are fitted with pressure control valves. The brake fluid container is an integral part of the master cylinder.

NOTE! As the frontwheel brakes are selfadjusting you may not notice when the brake pads are worn out. It is therefore very important that the maintenance instructions in the service book are followed.

When the car is used for competitive driving, the protective shields at the disk brake should be removed.

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.

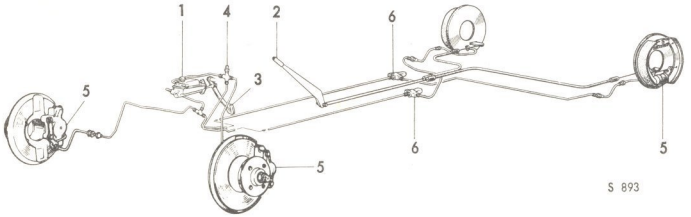


Figure 32. Brake system

1. Master cylinder with brake fluid container
2. Handbrake lever
3. Brake pedal
4. Stoplight switch
5. Brake cylinders
6. Pressure control valves

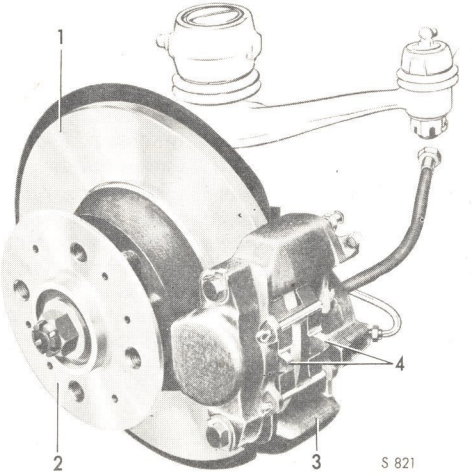


Figure 33. Disk brake

1. Brake disc
2. Wheel hub
3. Brake housing
4. Friction pads

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.

*Brake adjustment

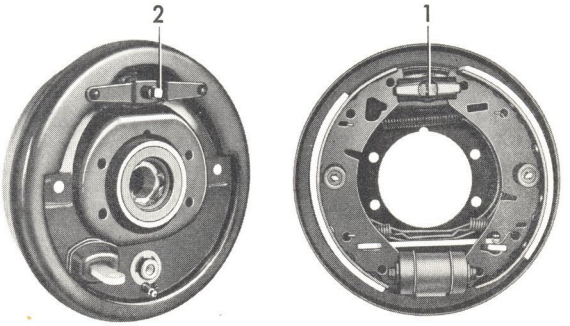
Wear on the brake linings makes itself apparent when the brake pedal or the handbrake lever have to be applied abnormally hard before braking occurs. There should always

* Should be carried out by an authorized service garage.

be a clear space of 2 in. (5 cm) under the brake pedal when this is depressed to obtain the full braking effect.

Wear on the friction pads is compensated for by a gradual outward movement of the piston. Abnormal wear on the friction pads is thus not revealed by excessive pedal travel.

Wear in the rear wheel linings is taken up by means of an adjustment screw. **It is extremely important to check regularly the wear of the brake linings in accordance with the instruction given in the Service Book.** 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. When relining or replacing the pads use only SAAB original equipment. SAAB also has an exchange system for brake shoes and linings.



S 860

Figure 34. 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 34. 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 1/8 in.—1/4 in. (3—6 mm), otherwise the brake linings will not be free when the brake pedal is released.

Handbrake adjustment

It should be possible to pull the handbrake two notches before the brakes drag. Brake lever play is adjustable by nuts 1 (Figure 35), accessible from the driver's seat. This adjustment — if needed — must not be carried out, however, until after the footbrake has been adjusted.

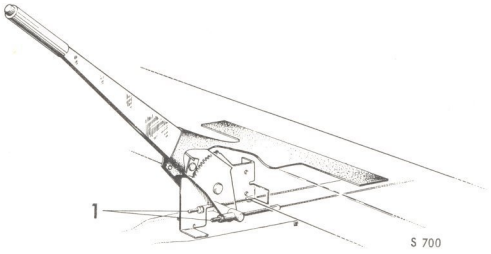
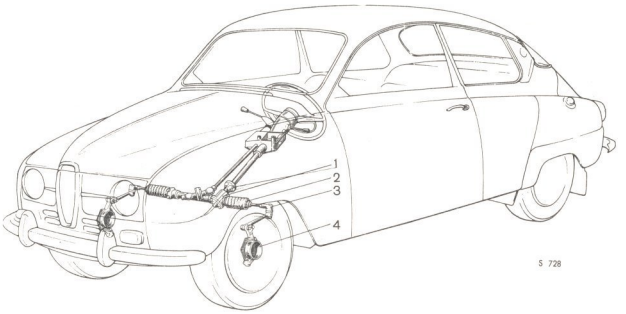


Figure 35. Brake lever with adjusting nuts

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: It is of the utmost importance that the steering gear be kept correctly adjusted. To this effect the adjustment should be carried out by an authorized SAAB service garage.



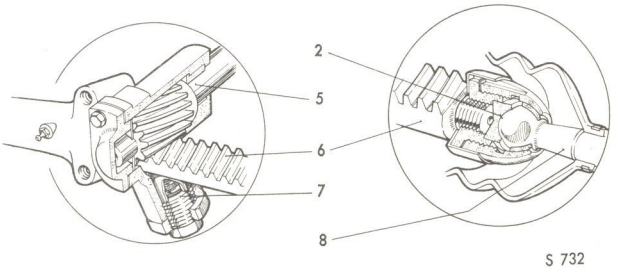


Figure 36. Steering mechanism

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

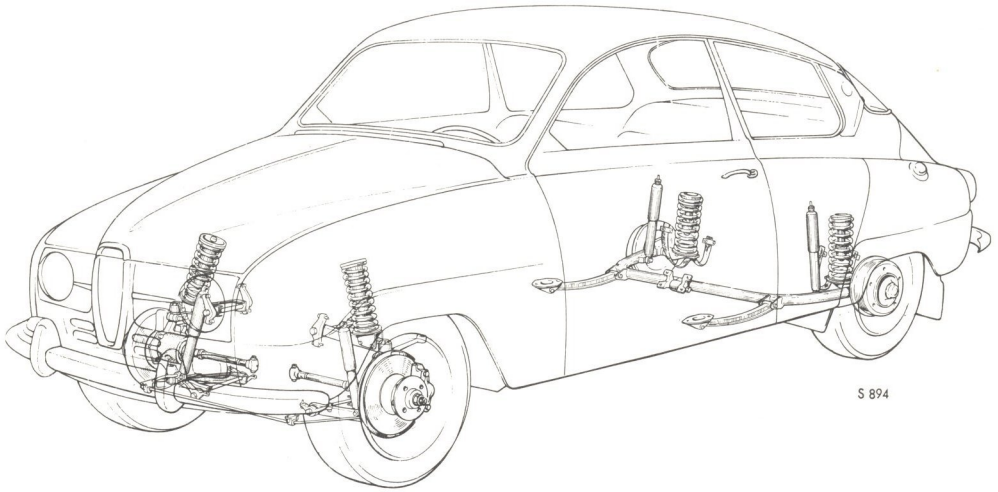


Figure 37. Axles and suspension

Suspension

The Saab 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.

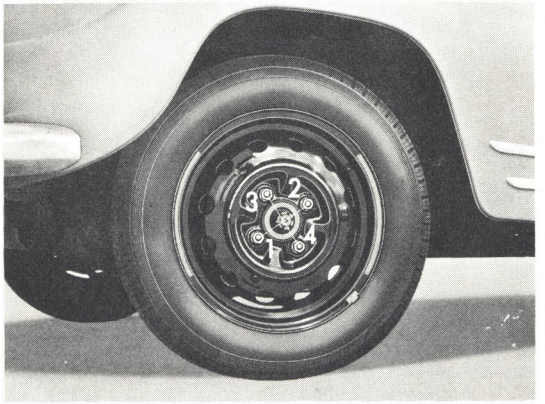
Shock absorbers

The Monte Carlo 850 has shock absorbers of the double-acting hydraulic telescopic type. The front shock absorbers are mounted in rubber at their lower ends to the front lower spring arm, and the rear absorbers by pins to the swept-back end of the rear axle. The front and rear shock absorbers are of different degress of hardness and have different stroke lengths.

Wheels and tires

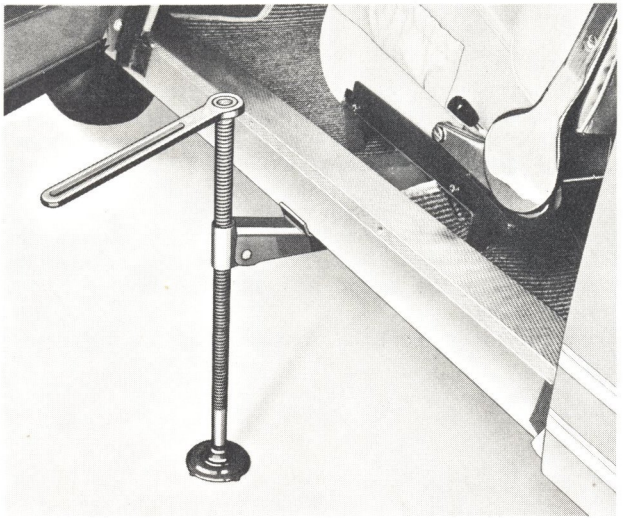
Rotation of wheels and tires

The front-wheel drive causes the front tires to wear more than the rear tires. If it is desired to have the tires wear evenly, they should be changed around after a certain period of driving so that the least worn tires are at the front. When doing so, check that each tire in its new position revolves in the same direction as before: thus the left front tire should be changed with the left rear tire. By switching the tires in this manner, the working life of all four tires will remain approximately equal. Figure 38 shows the sequence in which the wheel bolts are to be tightened.

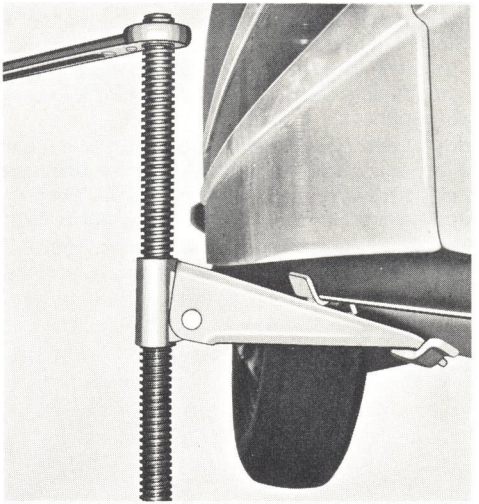


S 902

Figure 38. Tightening sequence for wheel bolts



S 909



S 910

Figure 39. Positioning of the jack

Jack and spare wheel

When jacking up the car for a wheel change, brake adjustment, etc., the jack should be placed in the bracket located under the floor beam (see Figure 39). The jack can also be used without opening the doors, as for example in bad weather.

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, tool kit and jack are kept under the floor of the trunk and the rear section of this floor can easily be lifted up.

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 6,000 miles (10,000 km) or whenever there is reason to believe that alignment is faulty.

The various alignment angles are shown in Figure 40. Note that dimensions A and B are measured between the wheel rims.

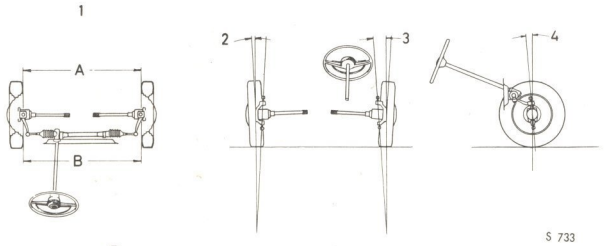


Figure 40. Front wheel alignment

1. Toe-in B—A = 2 ± 1 mm (.08 ± .04 in.)
2. Camber = 3/4 ± 1/4°
3. "King pin" inclination* = 7 ± 1°
4. Caster = 2 ± 1/2°

* Since the car 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.

Electrical system

Generator

The generator type AC-current 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 41) and pull the generator outwards. Correct tension is attained when the belt can be pressed inwards about 6–8 mm (1/4 in.) half way between the pulleys, see Figure 41. 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 need only be lubricated when the car is overhauled.

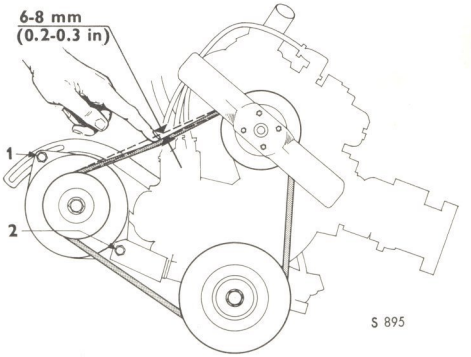


Figure 41. Adjustment of belt tension

1. Adjusting screw 2. Set screws

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. 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
3/4 charged	1.24
1/2 charged	1.21
1/4 charged	1.16
Discharged	1.12

Bulb replacement

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 and control lamps

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

Other lamps

Loosen the 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.

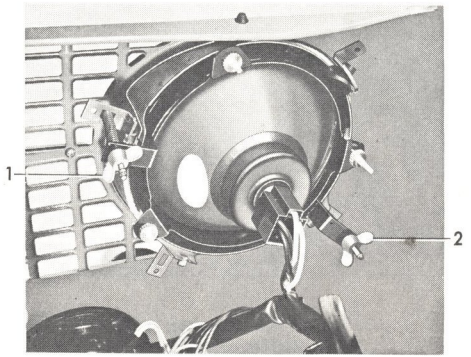
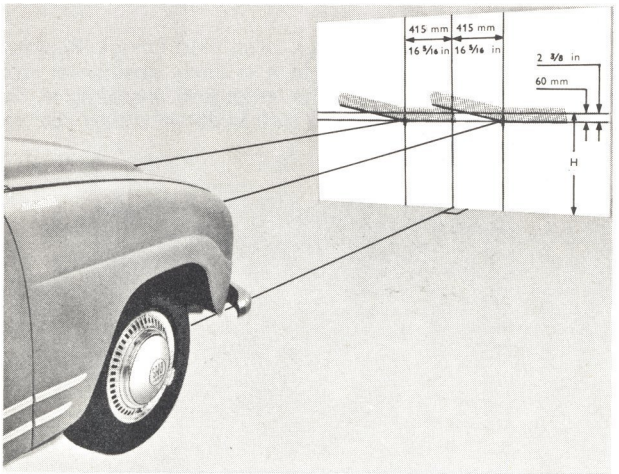


Figure 42. Screws for adjusting headlights

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



S 908

Figure 43. Aiming left-hand traffic assymmetric head-light against target.

H = Height of headlight centers

*Head Light Alignment

The headlights are mounted in the front plate. They are fitted with two adjustment screws, which are accessible from the engine compartment. The lower screw is used for height adjustment and the upper screw for adjustment on the horizontal plane.

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

NOTE: When a SAAB fitted with assymmetric headlights is taken abroad to a country where the opposite rule of the road is in force, see to it that the headlights be masked there by obtaining a suitable light.

*Aiming headlights against target

Left-hand traffic, assymmetric light

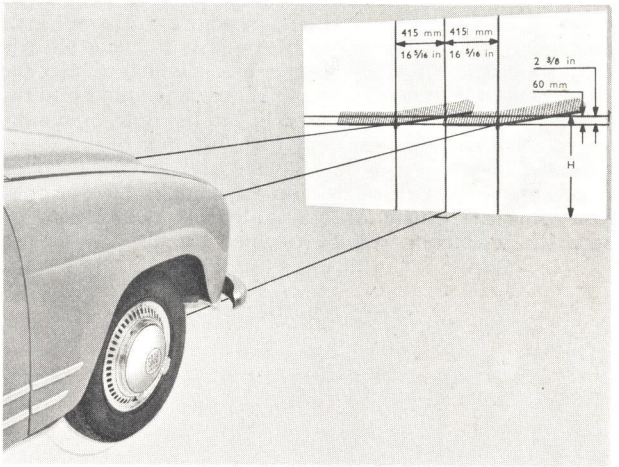
Check tire pressure and put the car (which should be unloaded) on an even surface five metres (17 ft.) from the chart or wall. Turn on the headlights, dipped and cover up one of them. Inspect and, if necessary, adjust the light beam so that the horizontal edge of the light/dark border lies exactly 6 cm (2.3/8 in.) below and to the right of the center of the beam (see Figure 43). 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.

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

* Should be carried out by an authorized service garage.

Right-hand traffic, assymmetric light

The target for aiming the assymmetric headlights is shown in fig. 44. 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 (2.3/8 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.



S 923

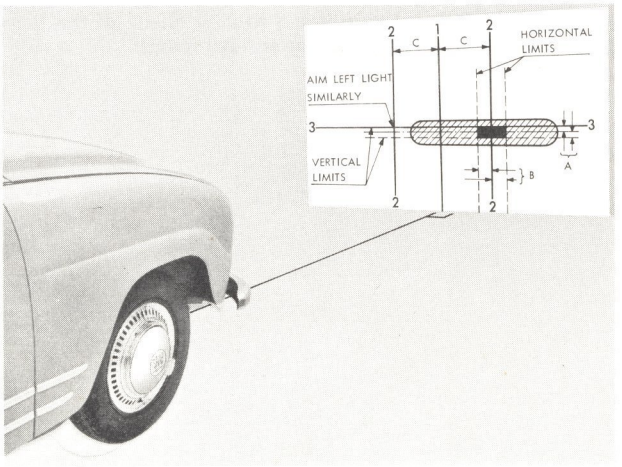
Figure 44. Aiming right-hand traffic assymmetric headlights against target

H = Height of headlight centers

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

The aiming of Sealed Beam assymmetric headlights should be carried out against a target, as shown in fig. 45, or with special equipment giving equivalent results. The various lines of the target are the 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 fig. 45. If the headlights are aimed according to this description, no separate adjustment will be required for the low beams.



S 924

Figure 45. Aiming Sealed Beam headlight against target

1. Car center line
2. Vertical and
3. Horizontal center line of headlights

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 between it and the power supply.

Radio interference elimination

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

Placement of suppressors

Ignition coil (connection 15) (+)	EMKO 9Z25
Generator (connection B +)	1 297 330 009

Wiring diagram Monte Carlo 850

The range of the electrical system is shown by the wiring system on the next page. To simplify the identification, the wires have been covered with insulation of different shades, as follows:

Black 7, 7b, 18, 31, 45, 46, 47, 49, 71, 80, 88, 105, 106, 107, 108, 109, 123, 123e, 124, 125, 135, 138, 139, 140.

Red 5, 21, 28, 28e, 28f, 32, 39, 61, 63, 65, 67, 68, 72, 83, 86, 86e, 111, 126, 129.

Green 16, 22, 50, 51, 52, 53, 54, 55, 56, 57, 58, 60, 82, 101, 102, 103, 104, 110, 119, 121, 133, 143.

Grey 4, 25b, 29, 35, 44a, 62a, 62b, 64, 69, 70, 74, 75, 85, 89, 113, 117, 142, 144.

White 20, 23b, 24b, 40, 42b, 66, 95, 97, 98, 118, 128a, 131.

Yellow 17, 23a, 24a, 33, 43, 44b, 73, 81, 84, 99, 100, 112, 112e, 128b, 130.

Brown 14, 15, 30, 137, 141.

Blue 13, 25a, 41, 42a, 145.

Key to numbers in Figure 46

1. Direction indicators and side lights
2. Headlights
3. Horn
4. Foglight and spotlight
5. Distributor
6. Spark plugs
7. Voltage regulator
8. Generator
9. Starter
10. Battery
11. Fuse box
12. Ignition coil
13. Series resistance
14. Oil warning relay
15. Oil gauge
16. Back-up light switch
17. Stop lamp switch
18. Heater fan motor
19. Temperature meter
20. Windshield-washer pump
21. Wiper motor
22. Direction indicator repeater light
23. Charge indicator light
24. Indicator light, oil pressure
25. High beam indicator light
26. Indicator light, fuel
27. Ignition and starter switch
28. Electric clock
29. Speedometer, mileage recorder and trip meter
30. Coolant thermometer
31. Fuel gauge
32. Tachometer
33. Flasher
34. Manoeuvre relay, light
35. Dipping relay
36. Cigarette lighter
37. Spotlight switch
38. Fog light switch
39. Headlight switch and instrument illumination rheostat
40. Heater fan switch
41. Windshield wiper and washer switch
42. Courtesy light switch
43. Courtesy light with switch
44. Horn button
45. Direction indicator switch with headlight flasher and dimmer switch
46. Fuel tank gauge
47. Back-up lights
48. Stop lights, direction indicators and tail lights
49. Number plate light
50. Trunk light

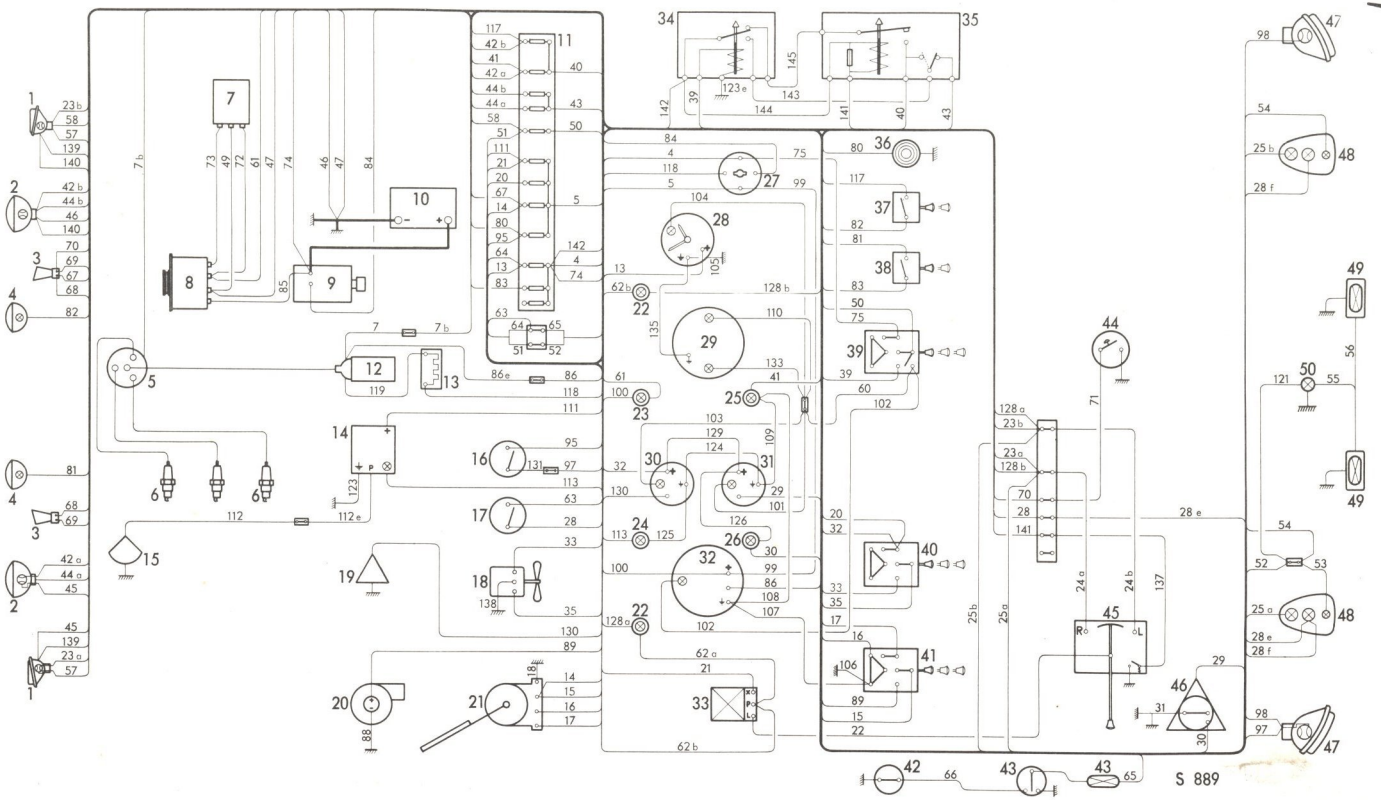


Figure 46. Wiring diagram Monte Carlo 850

(USA, see Figure 47)

cable numbers refer to table on the opposite page

Wiring diagram Monte Carlo 850, USA

The range of the electrical system is shown by the wiring system on the next page. To simplify the identification, the wires have been covered with insulation of different shades, as follows:

Black 7, 7b, 18, 19, 31, 45, 46, 47, 49, 71, 80, 88, 105, 106, 107, 108, 109, 123, 123e, 124, 125, 135, 138, 139, 140.

Red 5, 21, 28, 28e, 28f, 32, 39, 61, 63, 65, 67, 68, 72, 83, 86, 86e, 111, 126, 129.

Green 16, 22, 22e, 22f, 50, 51, 52, 53, 54, 55, 56, 57, 58, 60, 82, 101, 102, 103, 104, 110, 119, 121, 133, 146, 147.

Grey 4, 25b, 29, 35, 44a, 62a, 62b, 64, 69, 70, 74, 75, 85, 89, 113, 117, 142, 144.

White 20, 23b, 24b, 24be, 24bf, 40, 42b, 66, 95, 97, 98, 118, 128a, 131.

Yellow 17, 23a, 24a, 24ae, 24af, 33, 43, 44b, 73, 81, 84, 99, 100, 112, 112e, 128b, 130.

Brown 14, 15, 30, 137, 141, 141e.

Blue 13, 25a, 41, 42a.

Key to numbers in Figure 47

1. Direction indicators and side lights
2. Headlights
3. Horn
4. Foglight and spotlight
5. Distributor
6. Spark plugs
7. Voltage regulator
8. Generator
9. Starter
10. Battery
11. Fuse box
12. Ignition coil
13. Series resistance
14. Oil warning relay
15. Oil gauge
16. Back-up light switch
17. Stop lamp switch
18. Heater fan motor
19. Temperature meter
20. Windshield-washer pump
21. Wiper motor
22. Direction indicator repeater light
23. Charge indicator light
24. Indicator light, oil pressure
25. High beam indicator light
26. Indicator light, fuel
27. Ignition and starter switch
28. Electric clock
29. Speedometer, mileage recorder and trip meter
30. Coolant thermometer
31. Fuel gauge
32. Tachometer
33. Flasher
34. Manoeuvre relay, light
35. Dipping relay
36. Dip switch
37. Cigarette lighter
38. Spotlight switch
39. Fog light switch
40. Headlight switch and Instrument illumination rheostat
41. Warning flasher switch
42. Heater fan switch
43. Windshield wiper and washer switch
44. Courtesy light switch
45. Courtesy light with switch
46. Horn button
47. Direction indicator switch
48. Fuel tank gauge
49. Back-up lights
50. Stop lights, direction indicators and tail lights
51. Number plate light
52. Trunk light

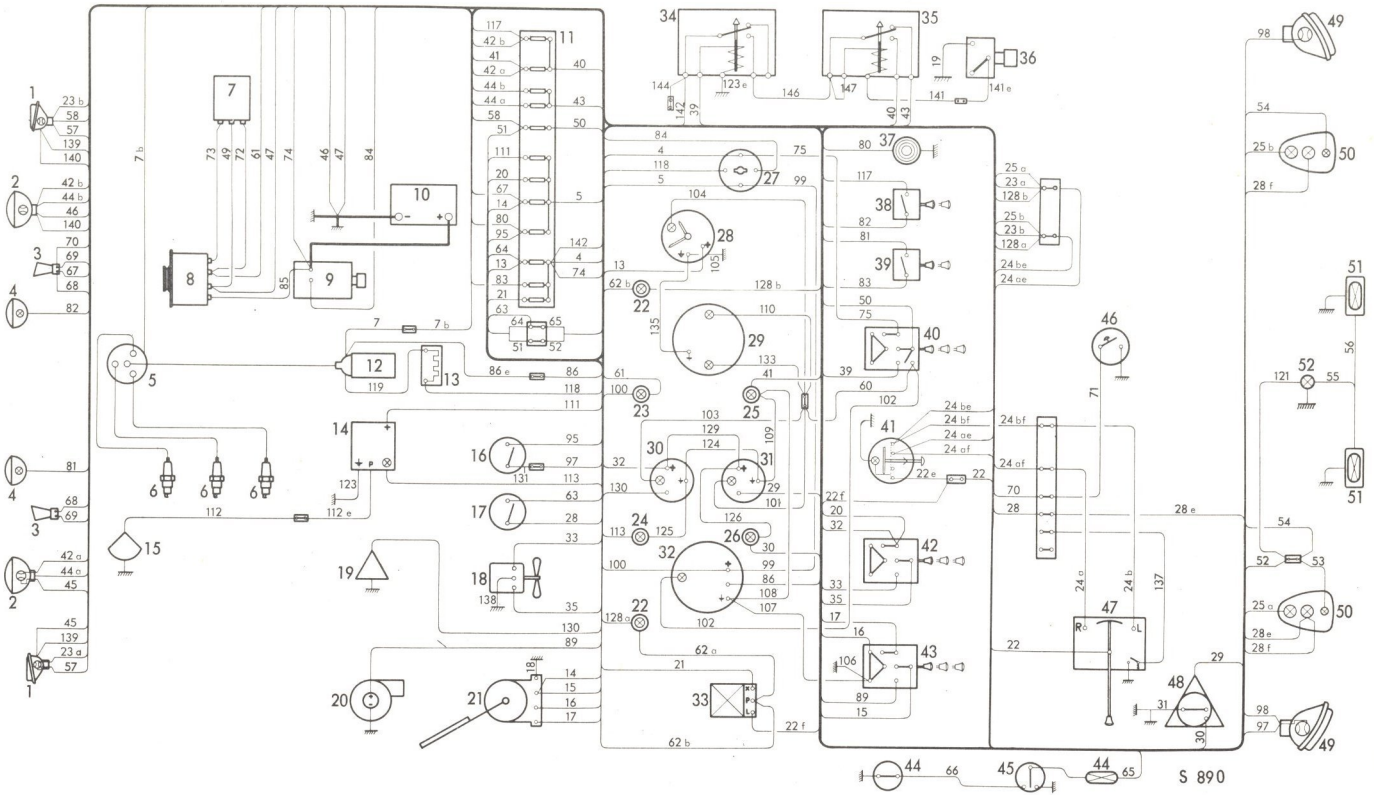


Figure 47. Wiring diagram Monte Carlo 850, USA

Cable numbers refer to table on the opposite page

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.

Touch-up paint which dries in the air is also available in spray cans.

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 cleaning fluid. In this case it is extremely important that the cleaning fluid 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 marked 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 polished. 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 excessive wax.

Care of underbody

The advantages attained by underbody coating can only be enjoyed if same 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 underbody should be thoroughly cleaned before a new coating is applied. Cleaning is best done with a scraper and wire brush, after which the underbody 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.

Rust-preventing treatment

The Saab cars are underbody coated before leaving the factory.

Still, there is a risk of corrosion due to alkaline and similar solutions sprayed on gravel roads. Therefore, we recommend the underside be inspected once a year.

This recommendation deserves attention especially from car owners living in districts where the risk of such corrosion is high.

If necessary the car should be treated with a reliable antirust agent by an authorized garage.

A serviceinformation dealing with rust-preventing treatment has been distributed among SAAB garages.

Chromium-plated parts

The alkaline solution sprayed on gravel roads 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.

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.

Engine compartment

The Engine Compartment should be cleaned with a rag or brush dipped in kerosene and then hosed with warm water. If high-pressure hoses are used, particular care should be taken to see that no water or kerosene is sprayed direct on the distributor, generator, starter motor or voltage regulator.

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. Check that the throttle is in the idling position, i. e. that the throttle stop screw strikes the stop on the carburetor.
   c. In cold and damp weather, clean the spark plug insulators and wipe them dry if grounding is suspected.
   d. Check the fuel line connections to the pump and the carburetor for leaks.

      By loosening the fuel hose fitting at the carburetor, check that the fuel pump is feeding fuel, and let the starter motor rotate the engine a few turns. Accelerator pedal in idling position.
   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. Use the starter to crank the engine while the accelerator is constantly kept fully depressed.

2. **Should the engine still fail to start, check whether 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**
   a. Check that the carburetor jets and ducts are not clogged. Clean the carburetor if required. See Figure 28.
   b. If there is reason to suspect that the safety clutch for the oil pump and the distributor have been in operation, the gear should be put back and locked in the correct position. See also page 29.

4. **Should the engine misfire, the cause may be :**
   a. An ignition cable has become loose and there is short-circuit with the metal.
   b. A spark plug is fouled. Clean and adjust gap.
   c. One of the contacts in the distributor cap is corroded or burnt.

d. The distributor cap is cracked or moist.
e. The terminal of a distributor ignition cable is not functioning properly.

5. Engine loses power. Check that:

a. Ignition cables are properly connected.
b. Spark plugs are clean and correctly gapped.
c. No carburetor jet or duct is clogged.
d. Accelerator is not jammed, thereby obstructing movements of throttle valve.
e. Grounding has not occurred in the ignition system.
f. Carburetor icing has not occurred (if weather is cold and damp). Put the preheater valve in position "Winter".

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

a. The battery is run down or a battery cable is loose.
b. The fuse for the indicator lamp is blown.
c. A cable has poor contact at the ignition switch or at the ammeter.
d. 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:

a. Poor connections between cables and distributor/ignition coil.
b. Ignition cable is damaged, causing a short-circuit with the metal.
c. Moisture in distributor.
d. Crack in the distributor cap or rotor.
e. 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.

a. Generator V-belt is broken or too slack.
b. Generator relay defective.
c. Generator defective.

9. Starter runs very slowly

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

10. Battery run down. The cause may be:

a. Electrolyte level too low.
b. Generator V-belt slipping.
c. Generator relay or generator defective.
d. A cable is poorly insulated.
e. A current-consuming unit fails to switch off.

Optional Extras

Heater, see page 12 and page 38

Sun Roof

The car can be delivered with a sun roof as an extra. The sun roof consists of an outer and an inner layer of cloth which are held by ribs and tensioners.

The ribs run in rails screwed to a wooden frame, which is fastened to the roof plate. The roof is opened by turning the handle and pulling the roof backwards.

Towing Hook

As an extra accessory a towing hook can be supplied to take a towline. The hook is hooked on to the lower edge of the bumper at one overrider and can be used both at the front and the back. If there is no hook available, towing forward can be carried out by taking the tow-line around one of the lower control arms just inside the shock absorber mounting.

Ask any authorized SAAB dealer for information and demonstrations of these extra fittings for the Saab Monte Carlo 850

Motoring Abroad

In certain areas Saab owners may not find adequate servicing facilities at garages and service stations familiar with the Saab. 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 with you.
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 and a set of spark plugs.
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. Beforing entering a country where the opposite rule of the road is in force, check that the headlights are altered.
2. Be certain to use only high-quality fuel, i.e. of at least 95 octane.
3. Avoid benzol-mixed fuels.
4. Use two-stroke oil. 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.

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 (Solex, Bosch, etc.).

Technical Data

General

Body	two-door, sedan
Number of seats	2 + 2 (incl. driver)
Overall length with bumpers	4.170 mm (13 ft. 8 in.)
Overall width	1.580 mm (5 ft. 2 in.)
Overall height, empty	1.475 mm (4 ft. 10 in.)
Road clearance (2 persons in front seat)	approx. 190 mm (7 in.)
Track, front and rear	1.220 mm (4 ft.)
Wheelbase	2.498 mm (8 ft. 2 in.)
Turning radius	5.3 meters (17 ft. 5 in.)
Curb weight incl. fuel, water, tools and sparewheel	865 kg (1.905 lbs)
Weight distribution:	
Empty, front	58 %
Fully loaded, 1.250 kg (2,760 lbs), front (4 persons and 85 kg – 190 lbs – luggage)	50 %
Hill-climbing performance:	
2nd gear	26 %
3rd gear	15 %
4th gear	9 %

Engine

Two-stroke, three-cylinder, water-cooled	
Bore of cylinders	70 mm (2.76 in.)
Stroke	73 mm (2.87 in.)
Cylinder volume	841 c.c. (51.9 cu.in.)
Compression ratio, nominal	9.0:1
Compression pressure, new engine all cylinders	128 ± 7.1 p.s.i. 9.0 ± 0.5 kp/cm²
Power:	
DIN at 5000 r.p.m.	55 b.h.p.
Max. torque	9,3 kpm (68 ft.lbs) at 3.800 r.p.m.

Lubrication

The engine in the Saab Monte Carlo 850 has a special lubrication system consisting of an oil pump driven by the crankshaft.

Oil recommendations

Engine:	
Summer	See recommendations page 20. Two-stroke oils, self-mixing and not-self-mixing, viscosity SAE 30–40
Winter, below −10°C (14°F) outdoor temperature	Only self-mixing two-stroke oil, i.e. oil prediluted by manufacturer, so called self-mixing oil
Oil tank capacity	approx. 4 litres (4 US quarts)
Service quantity	approx. 3 litres (3 US quarts)

Fuel system

Gasoline, premium	min. 95 octane
Fuel tank capacity	approx. 40 litres (10 US gals.)
Fuel pump	Pierburg PE 15201
Carburetor	3 down-draft type Solex 34 W 2 (Z)

Cooling system

Capacity, incl. heater	approx. 6.5 lit. (1,75 US gals.)
Temperature, normal	82–93°C (180–200°F)
Thermostat, opens at	approx. 82°C (180°F)

Transmission

Oil	EP oil SAE 80
Oil capacity, gearbox/differential	approx. 1.4 lit. 1.4 US quarts
Clutch type,	hydraulically operated single dry plate with spring hub
Plate, outer diameter	180 mm (7 in.)
Gear ratio, total:	
1st gear	17.0:1
2nd gear	10.2:1
3rd gear	6.3:1
4th gear	4.1:1
Reverse	15.5:1
Differential gear ratio, pinion/ring gear	4,88
Road speed at 1,000 r.p.m. engine speed, calculated running radius 298 mm (11.7 in.):	
1st gear	6.7 km/h 4.2 m.p.h.
2nd gear	11.1 km/h 6.9 m.p.h.
3rd gear	17.9 km/h 11.1 m.p.h.
4th gear	27.7 km/h 17.2 m.p.h.
Reverse	7.3 km/h 4.5 m.p.h.

Suspension

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

Shock absorbers

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

Brake system

Make	Lockheed
Foot brake, 4wheel, twin-circuit type	hydraulic
Hand brake, rear wheels	mechanical
Brake lining, front, disk brake	10 3/4" disk
Brake lining, rear, drum brake	8" × 1 1/2"

Steering mechanism

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

Wheel and tires

Rim type	"wide base" disk wheels
Rim dimensions	4J × 15"
Bolts per wheel	4
Tires. Sports car tires, dimensions	155 × 15"
Altern.	6.25–15 GP

Tire pressure 155 × 15"

Inflation Pressure	Front	Rear
Light load	22 lbs/sq.in. (1.5 kp/cm²)	20 lbs/sq.in. (1.4 kp/cm²)
Full load	24 lbs/sq.in. (1.7 kp/cm²)	24 lbs/sq.in. (1.7 kp/cm²)

For fast driving the tire pressure should be 24 lbs/sq. in. (1.7 kp/cm²) both front and rear, irrespective of load.

Tire pressure 6.25–15 GP

Inflation Pressure	Front	Rear
Light load	20 lbs/sq.in. (1.4 kp/cm²)	18 lbs/sq.in. (1.3 kp/cm²)
Full load	20 lbs/sq.in. (1.4 kp/cm²)	20 lbs/sq.in. (1.4 kp/cm²)

Front Wheel Alignment

Toe-in, measured on rim	2±1 mm (.08 in.±.04)
Camber	3/4±1/4°
Caster	2±1/2°
"King pin" inclination	7±1°

Electrical system

Voltage	12 volts
Battery/capacity	34 amp/h
Starter	0.5 h.p.
Generator	type AC current
Generator max. load	35 amps

Ignition coil	Bosch KW 12 V
Breaker point gap, distributor	0.3–0.4 mm (.012–.016 in.)
Ignition timing, engine stopped, advance weights retracted	10° before T.D.C.
Ignition timing at 3,000 rpm*	20° before T.D.C.
Firing sequence (No. 1 is the rear cylinder)	1–2–3

	Bulbs	Watts	SAAB No.	Philips No.
2	Headlights, Sealed Beam (USA)		712910	
2	Headlights, assymetric	45/40	710872	12620
2	Parking lights front	5	715472	12821
2	Flasher front	25 or 32 cp	715471	1073
2	Stop lights rear	32 cp	715471	1073
2	Flashers rear	32 cp	715471	1073
2	Tail light	5	715472	12821
2	Number plate light	5	708419	12844
2	Back-up light	32 cp	709683	1034
4	Temperature and fuel gauges, speedometer	2	708434	12829
1	Lighting, tachometer	4	715730	12929
1	Lighting, clock	2	715489	12913
6	Control lights	2	708434	12829
1	Courtesy light	5	708419	12844
1	Trunk light	4	715730	12929
2	Fog light and spot light	45	730880	12247
12	Fuses (25 mm)	8A		

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

Spark plugs

Used for:	Type	Electrode gap
Hard driving	Champion UK-16-V	–
Normal driving	Champion UK-7	0.7 mm

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, rear wheel

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.

Contents

SAAB

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