



CARS

PART 1
LUBRICATION
P 1800

SERVICE MANUAL

CONTENTS

Instructions for oil changing	1
Engine	1
Carburettors	1
Gearbox	1
Final drive	2
Steering box	2
Instructions for lubricating and cleaning	2
Replacing the oil filter	2
Crankcase ventilation	3
Air cleaners	4
Distributor	4
Cleaning the overdrive oil strainer	4
Checking the brake fluid level	5
Lubricating the handbrake cables	5
Lubricating the wheel bearings	5
Lubricating the speedometer cable	6
Lubricating the windscreen wiper	6
Lubricating the body	6
Special illustrations showing lubricating points	7
Specifications	9
Lubricating chart	

INSTRUCTIONS FOR OIL CHANGING

ENGINE

During the summer, and on cars used principally for long-distance driving, the engine oil should be changed every 5 000 km (3 000 miles). During the winter the oil should be changed every 2 500 km (1 500 miles), particularly on cars which are principally used for short-distance driving. In addition, on new cars the oil should be changed after the first 1 000 km (600 miles).

The oil should be drained immediately after driving while the engine is still warm. There is a plug for draining the oil, see Fig. 1. After all the oil has run out, check the washer and screw in and tighten the plug. Oil is filled in through the rocker arm casing after the filling cap has been removed.

The engine oil used should comply with the specification "For Service MS". When the temperature of the outside air is above 0° C (32° F) (summer), the viscosity should be SAE 20 and when the temperature is below 0° C (32° F) (winter), SAE 10 W. Alternatively multigrade oil SAE 10 W-30 can be used all year round. The oil changing quantity is 3.25 litres (6 Imp. pints=7 1/4 US pints). When replacing the oil filter, add a further 0.5 litre (1 Imp. pint=1 1/4 US pints).

Carburettors

Every time the oil is changed, the carburettor centre spindles should be filled with SAE 20 engine oil (not multigrade oil). When doing this, remove the plug and damping piston (Fig. 2), after which the centre spindle, but not the part above it, is filled.



Fig. 1. Drain plug on engine.

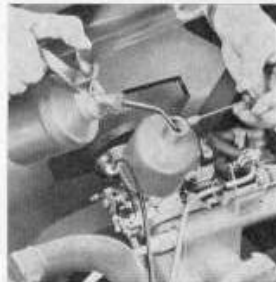


Fig. 2. Filling oil into the centre spindle.

GEARBOX

The oil should be changed every 40 000 km (25 000 miles). With a new or reconditioned gearbox, oil changing should also be carried out after the first 5 000 km (3 000 miles).

The old oil should be drained out immediately after driving while it is still warm. To do this, open the plugs (1 and 2, Fig. 3). On gearboxes with overdrive, also open the drain plug (Fig. 4) and clean the oil strainer, see page 4.

Fill up with new oil after having screwed in and tightened the drain plug. Oil should reach up to the filling hole (1, Fig. 3). Screw in and tighten the filling plug.

For gearboxes without overdrive, use SAE 80 gear oil all year round, the oil changing quantity being

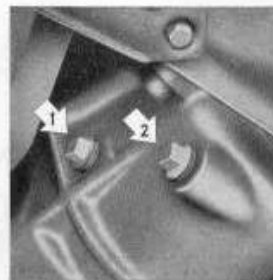


Fig. 3. Gearbox

1. Filling plug
2. Drain plug



Fig. 4. Drain plug on overdrive.

0.75 litre ($1\frac{1}{4}$ Imp. pints= $1\frac{1}{2}$ US pints). For gear-boxes with overdrive, SAE 30 engine oil is used all year round. The oil changing quantity in this case is 1.8 litres ($3\frac{1}{4}$ Imp. pints=4 US pints).

FINAL DRIVE

With a new or reconditioned final drive the oil should be changed after the first 5 000 km (3 000 miles). After this, the oil need only be changed in connection with reconditioning.

The oil should be changed immediately after driving while it is still warm. Since there is no drain plug on the final drive, the oil is sucked up through the filling hole. The oil can also be emptied by removing the cover. In this case great care must be taken to ensure that no dirt gets into the gears. Check that the cover gasket is undamaged, otherwise replace it.

Fill up with new oil to the edge of the filling hole (Fig. 5). Screw in and tighten the plug.

Use SAE 80 hypoid oil all year round. The changing quantity is 1.3 litres ($2\frac{1}{4}$ Imp.pints= $2\frac{3}{4}$ US pints).

STEERING BOX

The oil in the steering box normally only needs changing in connection with reconditioning. If the

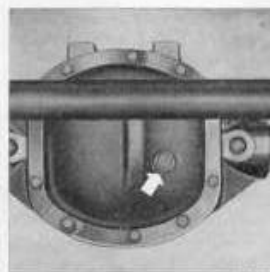


Fig. 5. Filling plug on final drive.

oil must be changed for any reason with the steering box fitted in the car, the old oil must be sucked out with a suitable appliance, for example, a syringe which is inserted through the filling hole.

Oil is filled in through the filling hole after the plug has been removed, see Fig. 6. The oil should reach up to the filling hole. Screw in and tighten the plug.

SAE 80 hypoid oil is used for the steering box all year round. The oil capacity is 0.25 litre ($\frac{1}{2}$ Imp. pint= $\frac{5}{8}$ US pint).



Fig. 6. Filling plug on steering box.

INSTRUCTIONS FOR LUBRICATING AND CLEANING

REPLACING THE OIL FILTER

The complete oil filter should be replaced every 10 000 km (6 000 miles). With a new or reconditioned engine it should, in addition, be replaced after the first 5 000 km (3 000 miles). *

1. Clean the parts of the engine around the oil filter in order to prevent dirt from getting into the lubricating system when removing.
2. Unscrew the oil filter anti-clockwise with the help of chain tongs as shown in Fig. 7. Screw

out the filter and collect up the oil oil running out.

3. Coat the rubber gasket of the new filter with oil and make sure that the contact surface for the oil filter is free from dirt. By coating the gasket with oil it will slide more easily up against the sealing surface. Screw on the filter by hand until it just touches the block.
4. Then tighten the oil filter a further half turn by hand. Chain tongs should not be used when fitting.
5. If the filter element is replaced without the engine oil being changed at the same time, top up with 0.5 litre (1 Imp. pint=1 1/4 US pints) of oil. Start the engine and check that the joint does not leak.



Fig. 7. Removing the oil filter.

CRANKCASE VENTILATION

In order for the crankcase ventilation to function satisfactorily, the filter in the oil filling cap should be removed and cleaned every 10 000 km (6 000 miles). Remove the cap, unscrew the three screws and lift off the cover, see Fig. 8. Clean the filter in petrol (gasoline), and allow it to dry and then moisten it with light oil. Before fitting the cap, check and replace the gasket if necessary.

On engines with positive crankcase ventilation (Fig. 9), the valve (6) should be replaced every 20 000 km (12 500 miles). On left-hand drive cars this crankcase ventilation system has been intro-



Fig. 8. Oil filling cap.

duced with effect from chassis number 8453. At the same time, remove the oil trap (8), hoses, nipple (2) and intermediate part (1) and clean thoroughly. If the hoses are damaged they must be replaced. The oil filling cap filter is cleaned as previously described.

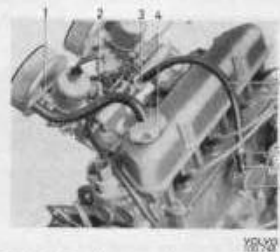
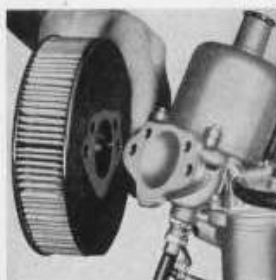


Fig. 9. Positive crankcase ventilation.

- | | |
|----------------------|----------------|
| 1. Intermediate part | 5. Rubber hose |
| 2. Rubber hose | 6. Valve |
| 3. Nipple | 7. Rubber hose |
| 4. Oil filling cap | 8. Oil trap |



Fig. 10. Positive crankcase ventilation.
(concerning number references, see Fig. 9.)



VOLVO
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Fig. 11. Replacing air cleaner (left-hand drive).

AIR CLEANERS

On left-hand drive cars the cleaner element and casing are made as an integral unit so that the complete air cleaner should be replaced and the old one discarded after every 20 000 km (12 500 miles). The attaching bolts are unscrewed and the cleaner lifted off as shown in Fig. 11. When fitting the new cleaner, check that the gasket is undamaged and that the ventilation holes come opposite the corresponding holes on the carburettor, see the figure.

On right-hand drive cars the elements should be replaced every 20 000 km (12 500 miles). The wing nut is unscrewed and the casing removed (Fig. 12), after which the element is replaced. Make sure that the contact surfaces for the element are clean. Be careful not to allow any dirt to get into the air intake or on the inside of the element.

Warning. On no account must the elements of this type of air cleaner be washed or oiled. When driving in dusty conditions it may be necessary to shorten the changing intervals.



VOLVO
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Fig. 12. Replacing the air cleaner element (right-hand drive).



VOLVO
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Fig. 13. Distributor.

1. Lubricating cup 2. Cam 3. Felt wick

DISTRIBUTOR

The distributor should be lubricated every 10 000 km (6 000 miles). Lubricate the felt wick (3, Fig. 13) under the rotor arm with 2–3 drops of light engine oil. The contact surface of the cam should be lubricated with a very thin coating of vaseline. The lubricating cup (1) is filled with light engine oil.

CLEANING

THE OVERDRIVE OIL STRAINER

The oil strainer should be cleaned every time the oil in the overdrive is changed. After the oil has been drained out through the plug (Fig. 4), cleaning is carried out as follows:

1. Remove the cover (2, Fig. 14) and take out the oil strainer (1).
2. Clean the oil strainer in petrol (gasoline) or white spirit. Blow dry with compressed air.
3. Check that the gasket (3) is in good condition and place it in position. Fit the oil strainer, a new gasket (4) and the cover.



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34722

Fig. 14. Removing the overdrive oil strainer.

1. Oil strainer 2. Cover 3. Gasket for oil strainer 4. Gasket for cover



Fig. 15. Brake fluid containers.
1. Brakes 2. Clutch

CHECKING THE BRAKE FLUID LEVEL

Every 5 000 km (3 000 miles) check that the fluid level in both the containers (Fig. 15) reaches up to 15–20 mm ($\frac{3}{4}$ – $\frac{1}{2}$ ") below the edge of the filling hole.

Top up if necessary with first-class brake fluid which complies with specification SAE 70 R 3. Brake fluid which only fulfils the requirements of specification SAE 70 R 1 should not be used. Avoid spilling brake fluid onto the paintwork as this can cause damage.

LUBRICATING THE HANDBRAKE CABLES

The handbrake cables should be lubricated a couple of times a year. Remove the front and rear attachments for the outer casing and move it backwards and forwards while applying graphite grease on the cable, see Fig. 16.



Fig. 16. Lubricating the handbrake cables.

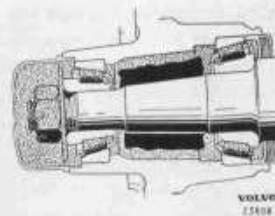


Fig. 17. Front wheel bearings.

LUBRICATING THE WHEEL BEARINGS

The wheel bearings should be cleaned and lubricated after every 40 000 km (25 000 miles), but in any case at least once every other year. Removing is done in accordance with the instructions in Part 7 of the Service Manual.

After the bearings and seals have been removed, the hub and grease caps should be thoroughly cleaned. Make sure that all old grease is removed from inside the hub. Compressed air can be used for preliminary cleaning of the bearings. The bearing parts are then washed in white spirit or similar after which they are allowed to dry. They should not be dried with compressed air because this often contains moisture and dust particles. Accessible bearing parts should be wiped with linen or cotton rags (not waste).

A new bearing in a sealed carton should not be cleaned.

Inspect all the parts carefully after cleaning. If there are any signs of damage, rust or blueing on the bearing races or rollers, replace the bearing. If the outer or inner rings are loose, test with a new ring. If the looseness does not disappear, the hub or axle respectively must be replaced. The seals should be replaced if they are worn or damaged.

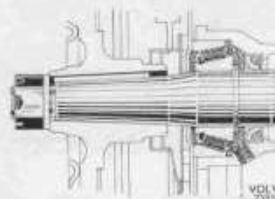


Fig. 18. Rear wheel bearings.

P 1800

For lubricating the wheel bearings use only a high quality lithium base multi-purpose grease. For effective greasing, a pressure greaser should be used. Follow the instructions of the manufacturer concerned carefully. If a pressure greaser is not available, pack the bearings by hand with as much grease as there is room for between the roller retainer and inner race. Also apply grease to the outside of the rollers and retainers. The space in the hub between the outer and inner bearings should be filled with grease as shown in Figs. 17 and 18.

Fitting is done in accordance with the instructions in Part 7.

LUBRICATING THE SPEEDOMETER CABLE

The speedometer cable should be lubricated about every 20 000 km (12 500 miles) or once a year. It is important that the cable should not be lubricated in such a manner that lubricant can penetrate into the actual instrument and impair its function. Oil is therefore unsuitable for this purpose. Lubricating should be carried out as follows.

Disconnect the cable from the speedometer and pull it out of the outer casing about 20 cm (8"), see Fig. 16. Wipe the cable clean and lubricate it with a thin coating of Castrol LM grease or corresponding. Push back the cable into the outer casing and connect it to the speedometer.



Fig. 19. Lubricating the speedometer cable.

LUBRICATING THE WINDSCREEN WIPER

The windscreen wiper gear housing and drive shaft, together with the drive mechanism, should

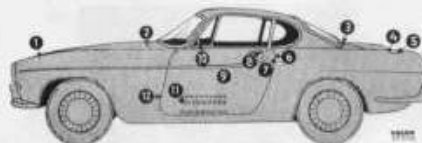


Fig. 20. Lubricating points on body.

be lubricated with grease when reconditioning. The wiper arm shafts should be lubricated with light engine oil every 5 000 km (3 000 miles).

LUBRICATING THE BODY

In order to avoid squeaking and unnecessary wear, the body should be lubricated in accordance with the instructions below. The door locks and door handle lock buttons should be lubricated about every 10 000 km (6 000 miles) and other parts of the body about once a year. In addition, during winter the door handle locks, luggage compartment lid lock and petrol (gasoline) filling cap lock should be treated with a suitable anti-freeze agent to prevent them from freezing up.

No. Lubricating point	Lubricant
1 Bonnet (hood) hinges	Engine oil
2 Bonnet (hood) catch	Engine oil
3 Luggage compartment lid hinges ..	Engine oil
4 Luggage compartment lid lock button	Paraffin wax
Keyhole	Silicon oil
5 Petrol (gasoline) filling cap	See figure
6 Striker plates	Paraffin wax
7 Door locks	See figure
8 Door handle lock buttons	Paraffin wax
Keyholes	Silicon oil
9 Remote control, linkages, locks and window winders (accessible after the door upholstery panels have been (removed)	Silicon grease for slide rails and pulleys, otherwise engine oil
10 Ventilation window catches and hinges	Engine oil
11 Front seat slide rails and catches ..	See figure
12 Door hinges	See figure

Special Illustrations Showing Lubricating Points



Fig. 21. Striker plate

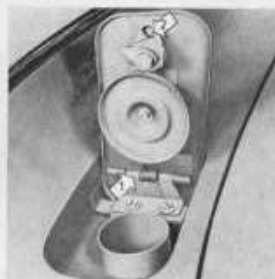


Fig. 22. Petrol (gasoline) filling cap.
1. Hinge (light oil)
2. Lock (silicon oil)



Fig. 23. Door lock.
1. Lubricating hole for lock (silicon oil)
2. Door latch (paraffin wax)

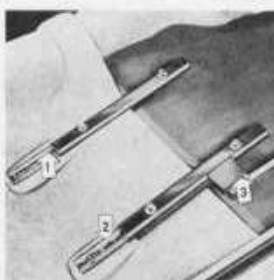


Fig. 24. Seat rails.
1. and 2. Slide rails (paraffin wax)
3. Catch (light oil)



Fig. 25. Door hinges.
1 and 3. Hinges (light oil)
2. Door stop (paraffin wax)

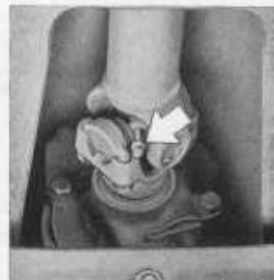


Fig. 26. Front universal joint.
(early production)



Fig. 27. Centre universal joint.
1. Splined shaft
2. Universal joint

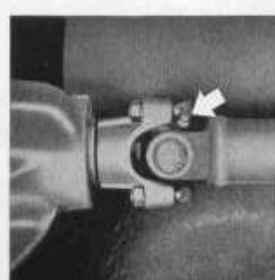


Fig. 28. Rear universal joint.
(early production)

P 1800



Fig. 29. Ball joints.
1. Upper ball joint
2. Lower ball joint



Fig. 30. Relay arm.
(late production)

SPECIFICATIONS

ENGINE

Lubricating oil, type	Engine oil
quality	Service MS
viscosity, above 0° C (32° F)	SAE 20
below 0° C (32° F)	SAE 10 W
alternatively all year round	Multigrade oil SAE 10 W-30
Oil changing quantity, without oil filter	3.25 litres (6 Imp.pints=7 ⁵ / ₄ US pints)
with oil filter	3.75 litres (7 Imp.pints=8 ¹ / ₂ US pints)

GEARBOX WITHOUT OVERDRIVE

Lubricating oil, type	Gear oil
viscosity all year round	SAE 80
Oil changing quantity	0.75 litre (1 ¹ / ₄ Imp.pints=1 ¹ / ₂ US pints)

GEARBOX WITH OVERDRIVE

Lubricating oil, type	Engine oil
quality	Service ML, MM, MS, DG, DM or DS
viscosity all year round	SAE 30
Oil changing quantity	1.8 litres (3 ¹ / ₄ Imp.pints=4 US pints)

FINAL DRIVE

Lubricating oil, type	Hypoid oil
viscosity all year round	SAE 80
Oil changing quantity	1.3 litres (2 ¹ / ₄ Imp.pints=2 ³ / ₄ US pints)

STEERING BOX

Lubricating oil, type	Hypoid oil
viscosity all year round	SAE 80
Oil capacity	0.25 litre (1/2 Imp.pint=5/8 US pint)

INSTRUCTIONS FOR LUBRICATING CHART

SYMBOLS



Engine oil "For Service MS"

Engine oil "For Service MS"

Viscosity, above 0° C (32° F) (summer) .. SAE 20
below 0° C (32° F) (winter) SAE 10 W
or multigrade oil all year round SAE 10 W-30



Hypoid oil SAE 80



Chassis lubricant



Light engine oil



Brake fluid



Lubricant see respective note

OIL CHANGING QUANTITIES

Engine, excluding oil filter	3.25 litres (6 imp.pints=7 1/4 US pints)
including oil filter	3.75 litres (7 imp.pints=8 1/2 US pints)
Gearbox without overdrive	0.75 litre (1 1/4 imp.pints=1 1/2 US pints)
with overdrive	1.5 litres (3 1/4 imp.pints=4 US pints)
Final drive	1.3 litres (2 1/4 imp.pints=2 3/4 US pints)
Steering box	0.25 litre (1/2 imp.pint=1/2 US pint)

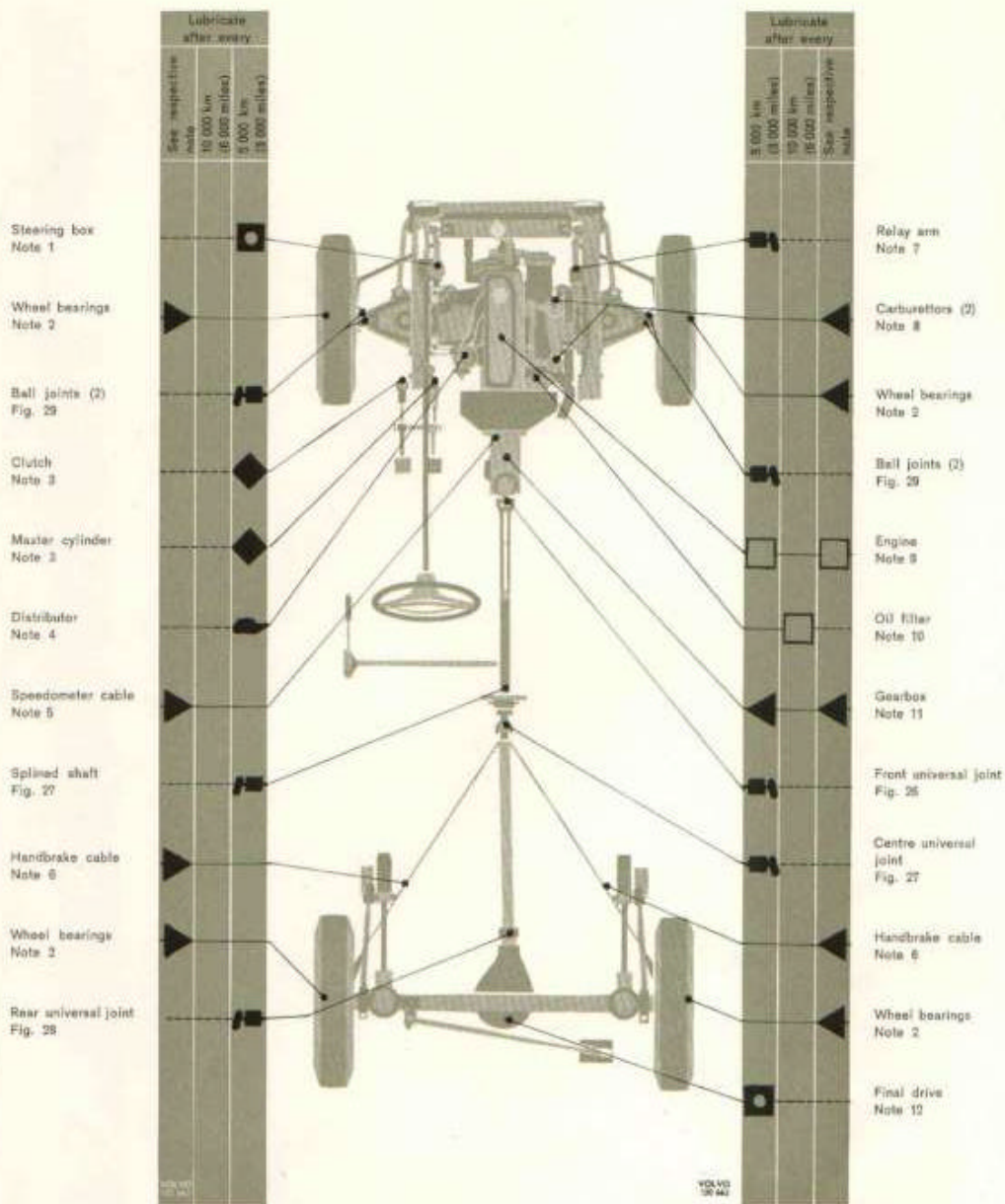
OTHER LUBRICATING POINTS

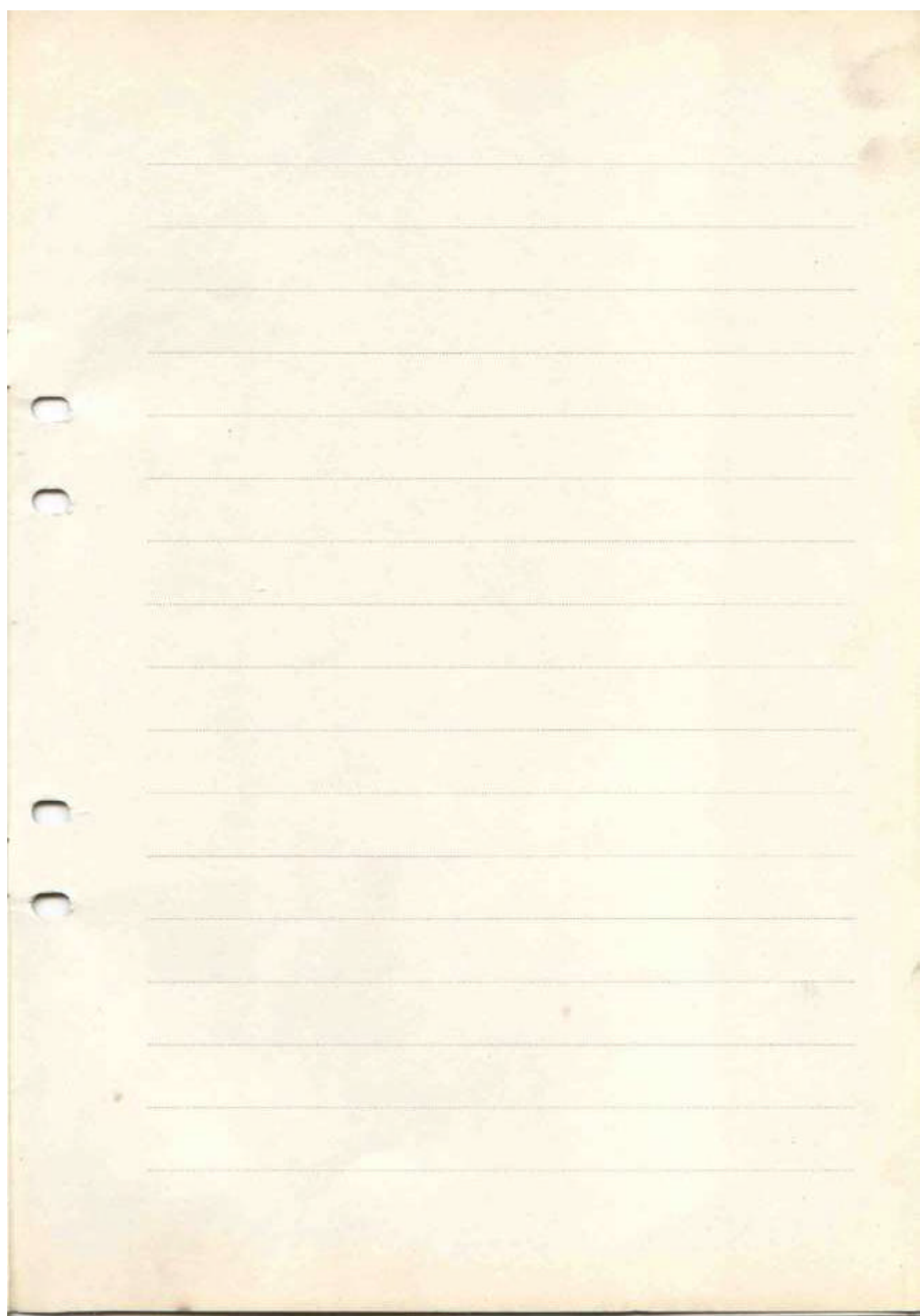
In addition to the points shown on the lubricating chart, the chassis should be lubricated once or twice a year at all joints for the throttle control, handbrake, pedal linkages, etc.

NOTES

- Note 1. Check that the oil reaches up to the filling plug (Fig. 6). Use SAE 80 hypoid oil all year round.
- Note 2. Every 40 000 km (25 000 miles) remove the wheel bearings for lubrication and cleaning, see page 5.
- Note 3. Check that there is sufficient brake fluid in the container, see page 5.
- Note 4. Lubricate the distributor in accordance with the instructions on page 4.
- Note 5. Lubricate the speedometer cable every 20 000 km (12 500 miles) or once a year, see page 6.
- Note 6. Lubricate the handbrake cables with graphite grease a couple of times a year, see page 5.
- Note 7. If there is a grease nipple on the relay arm, lubricate every 5 000 km (3 000 miles). On cars up to chassis number 3322 the relay arm does not require lubricating so that there is no grease nipple.
- Note 8. At every engine oil change fill the carburettor damping cylinders with SAE 20 engine oil, see page 1.
- Note 9. Check the oil level when filling up with petrol (gasoline). Change the oil every 5 000 km (3 000 miles), and in spring and autumn when changing over to another viscosity see page 1.
- Note 10. Replace the oil filter complete in accordance with the instructions on page 2.
- Note 11. Check every 5 000 km (3 000 miles) that the oil reaches up to the filling plug. Change the oil every 40 000 km (25 000 miles). Concerning the servicing procedure and type of oil, see page 1.
- Note 12. Check every 5 000 km (3 000 miles) that the oil reaches up to the filling plug.

LUBRICATING CHART FOR P 1800







RUNDCVISTS BOKTRYCKERI, GÖTEBORG, 1964