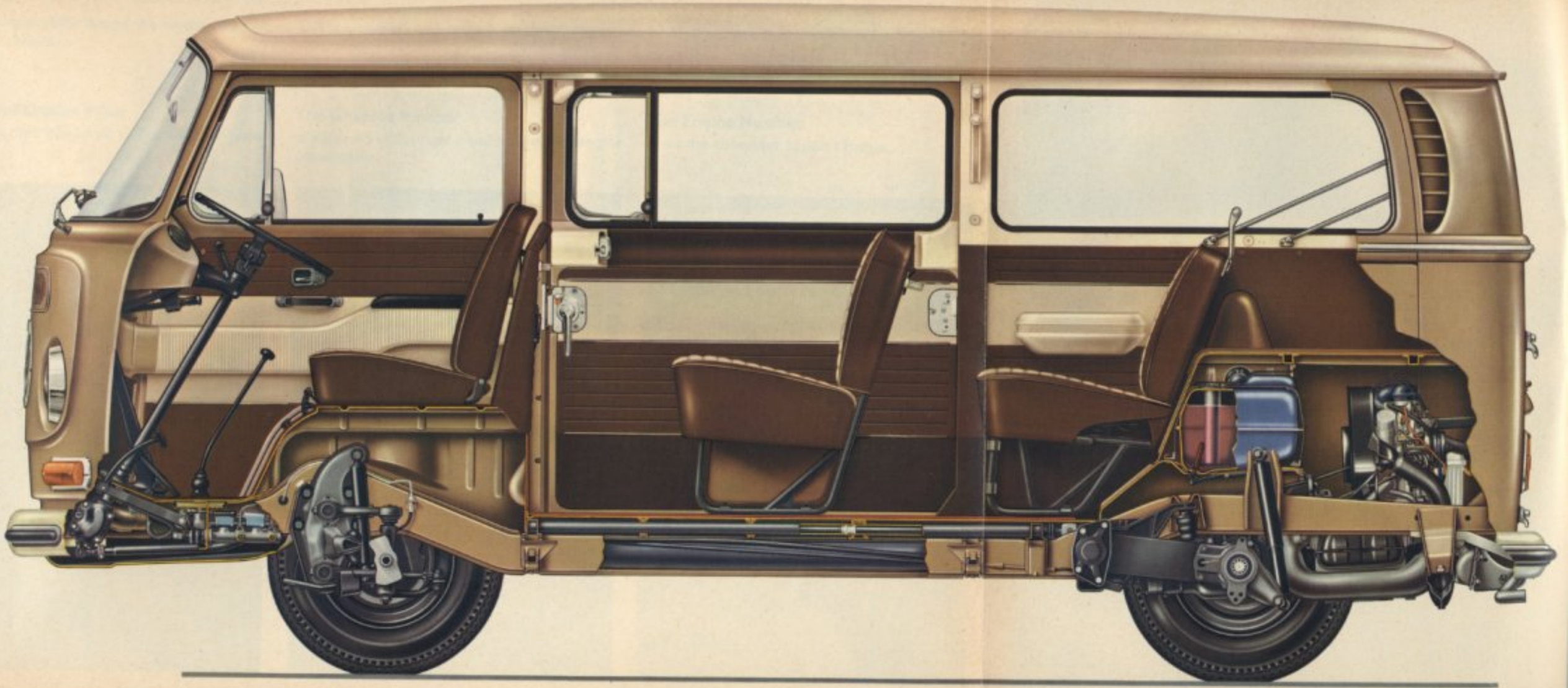
# Instruction Manual and Service Card



# Instruction Manual and Service Card

## VOLKSWAGEN TRANSPORTER

August 1967

VOLKSWAGENWERK AG · WOLFSBURG

# Contents



All pictures show the Clipper L and the text is based on this vehicle. Where the controls and equipment of the other models differ considerably, attention is drawn to the difference. Special equipment such as is often required due to local regulations in various countries is not taken into account.

# It is advisable

**to read the first part of this instruction manual, which deals with the operation of your Volkswagen Transporter, very carefully. You will then get to know your new vehicle quickly and will be able to start off on your first trip with complete confidence.**

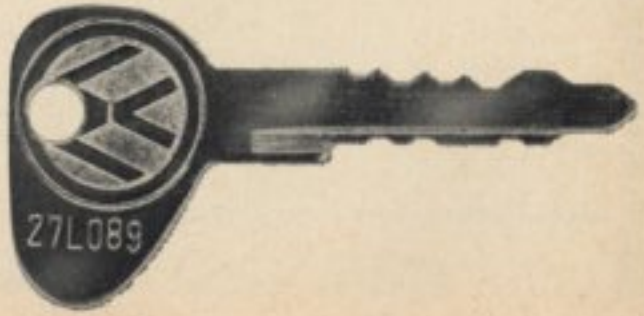
**Everything about winter driving, tips on care of the vehicle and numerous points on carrying out small repairs and adjustments are given in the second half of this manual. This part also contains information on lubrication and maintenance and some interesting technical data.**

**At the back of the book is the service card, the warranty voucher and terms of warranty and a voucher for the free-of-charge maintenance service. The stamps in the squares show you that the lubrication and maintenance services have been carried out regularly by a VW Dealer.**

# Getting acquainted

## Only one key

is required to open the doors and rear flap and start the engine. It is a good idea to note the number of the key. If you should lose the key, you can then obtain a replacement from your VW Dealer by quoting this number.



# All the doors

of your Transporter can be unlocked from outside.

**The cab doors**
of the Clipper L model are fitted with vent wings.

**1 - Vent wing fastener**
To open, turn the fastener knob until the locking lug points to the front, then swing the fastener forward.

**2 - Window crank**

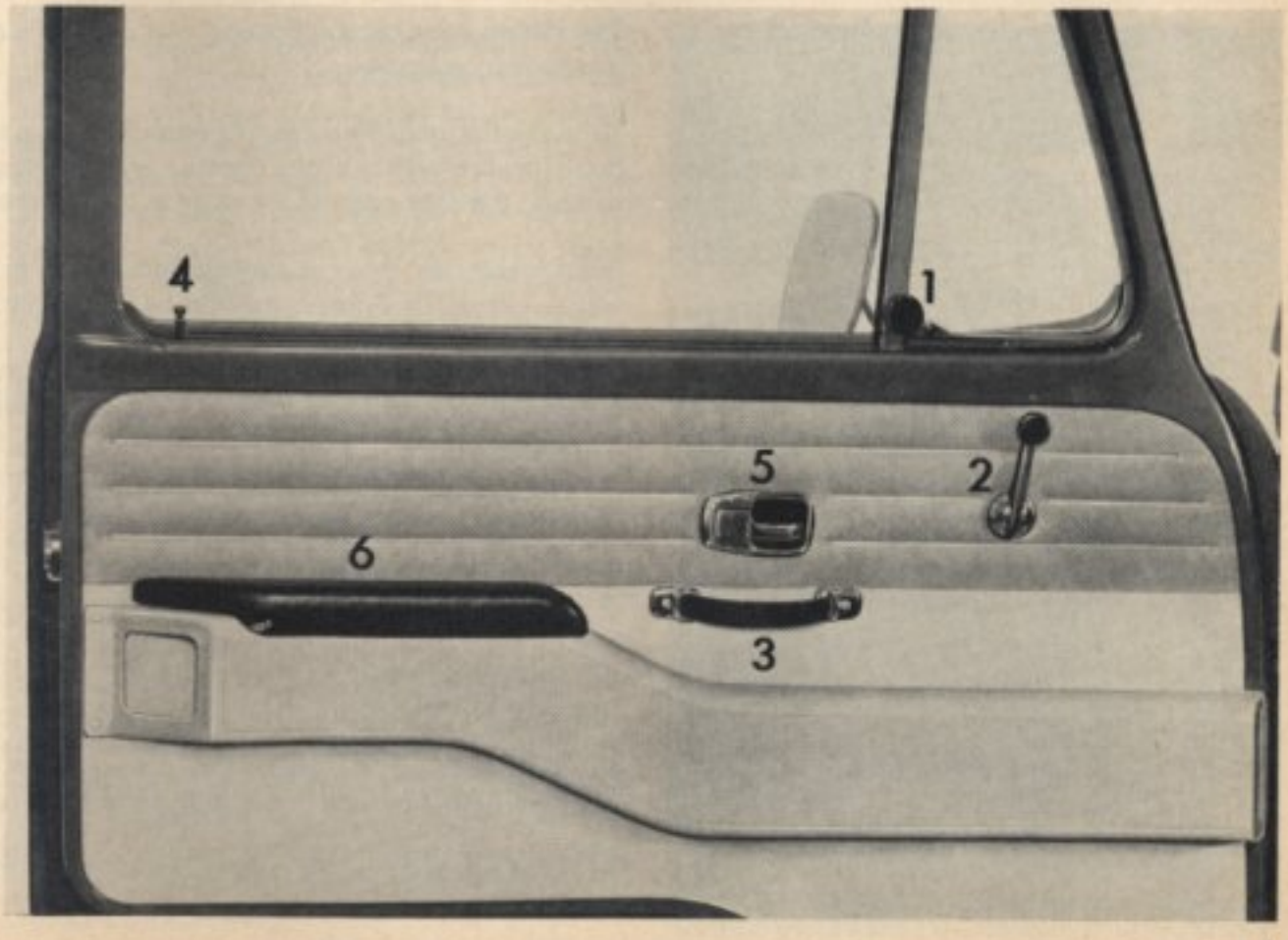
**3 - Door closing handle**

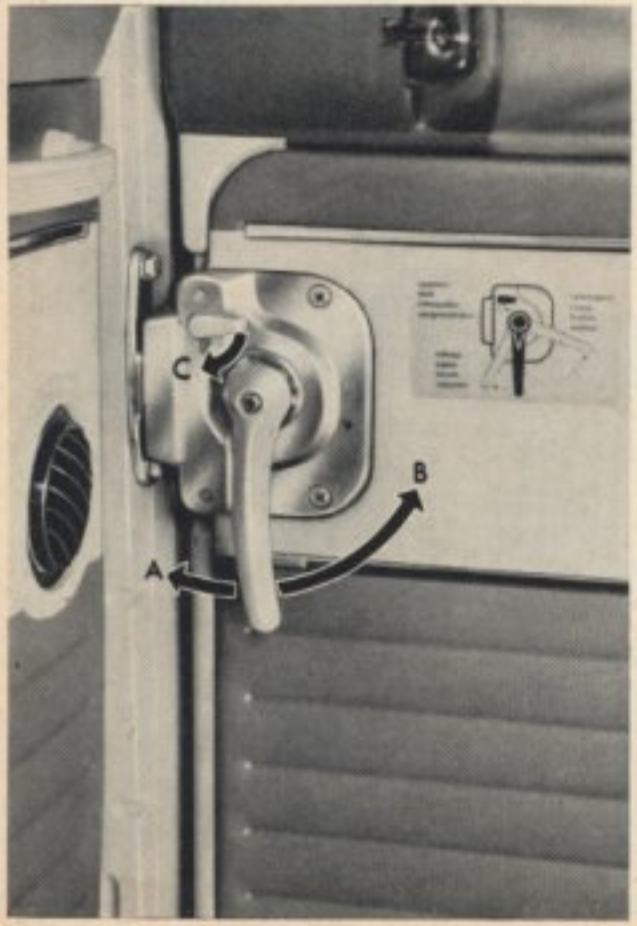
**4 - Safety knob for lock**
When leaving the vehicle, just press the safety knob down and then depress the button in the door handle as you close the door. The vehicle is then locked.

If the door closes on its own after the safety knob has been depressed, it will not lock itself because the safety knob springs up automatically. This is an additional safety measure to prevent you from being locked out if the door should slam to while the key is still inside the vehicle.

**5 - Lock release lever**
The doors cannot be opened from inside with the lock release lever until the safety knobs have been lifted.

**6 - Arm rest on fresh air duct**
This is only fitted in the Clipper L and Clipper models.






The **sliding door** can be opened and slid back after pressing the handle down. When fully open, it is held by a hook.

To close the door, release the retaining hook by pressing the handle down again and push the door forward with a slight impetus until it engages. Then move the handle up firmly so that the catch at the rear edge of the door is operated and the door is pulled in properly at the rear.

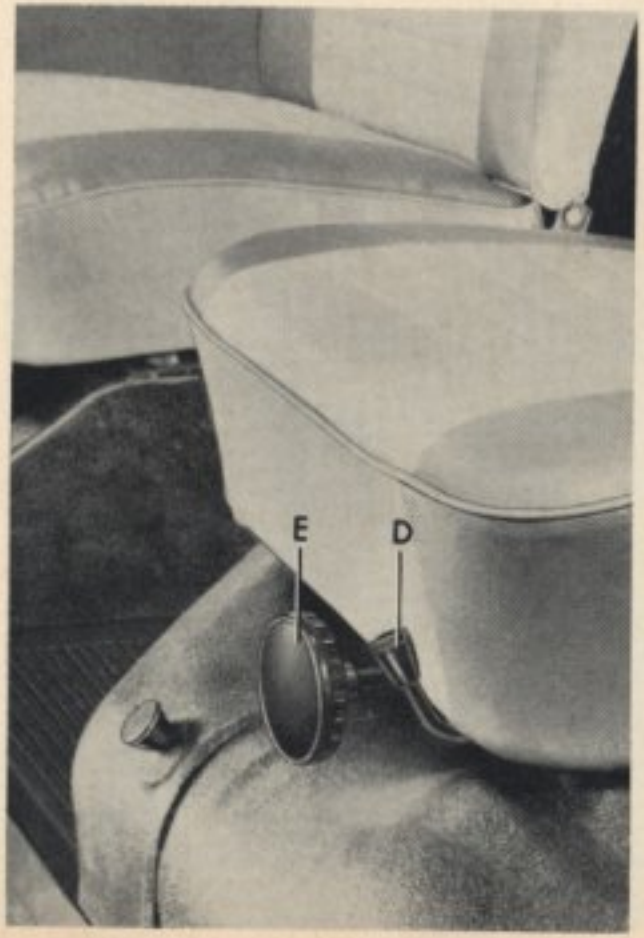
From inside, the door is opened and closed in the same way: To open it, press the handle forward — A —, to close it, pull the handle firmly to the rear — B —.

Please note that when the vehicle is in motion, the door must always be closed. The door can be locked with the key from outside or by turning the small locking catch inside — C — to point downwards.

The **rear door** can be opened by pressing the button at the bottom of the door and then lifting the door until it is held in the fully open position by spring pressure.

To close the door swing it down with a slight impetus. Always check afterwards that the door is properly closed.

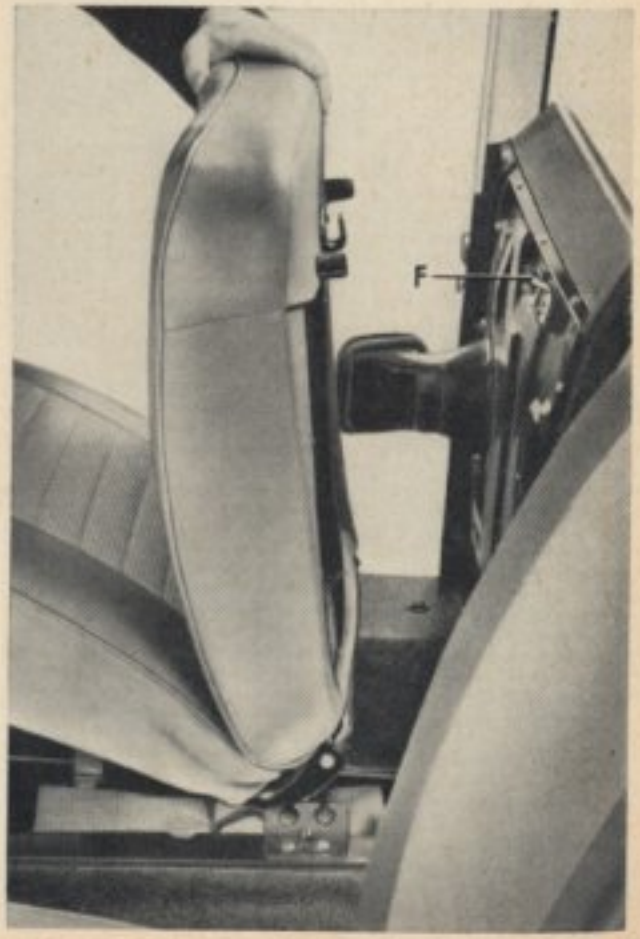
# Get in and make yourself comfortable




When driving, you must be comfortable. That is why the seat position and backrest rake of the driving seat in your Transporter can be altered to suit your requirements. This is quite simple to do: Just lift the lever — D — at the front of the seat and slide the seat forward or backward. Every time the seat is moved make sure that the lever engages properly so that the seat cannot move while you are driving.

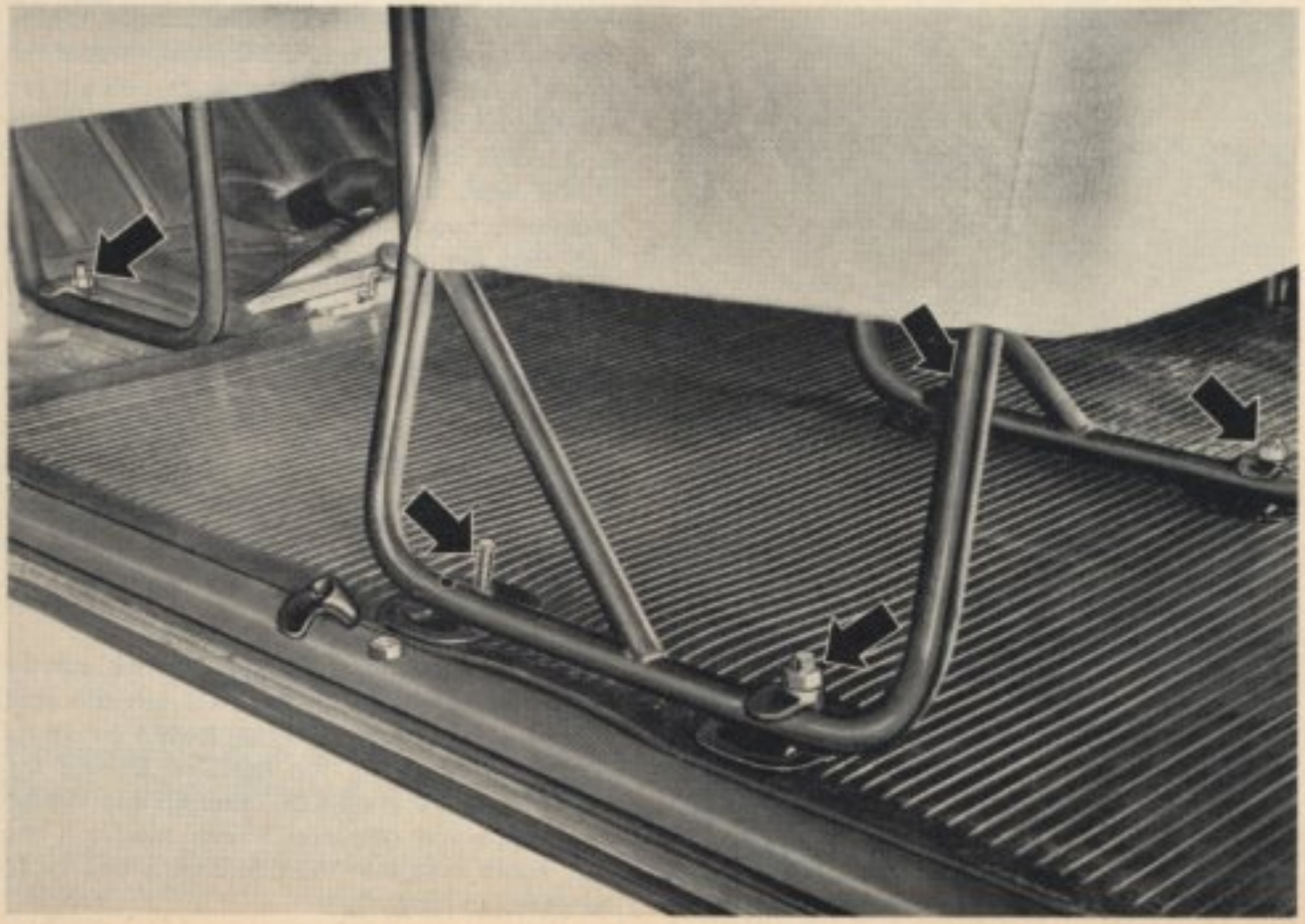
The backrest, which has a safety device to prevent it from tilting forward, can be set to any desired angle by turning the large knob — E —.

The front passenger seat and backrest can be set to two positions as follows: Lift the seat at the front until the backrest hooks out of its retainer — F — on the partition behind the seat. The seat can now be lifted up and moved to the position required. When lowering the seat, make sure that the backrest hooks on to the partition properly.

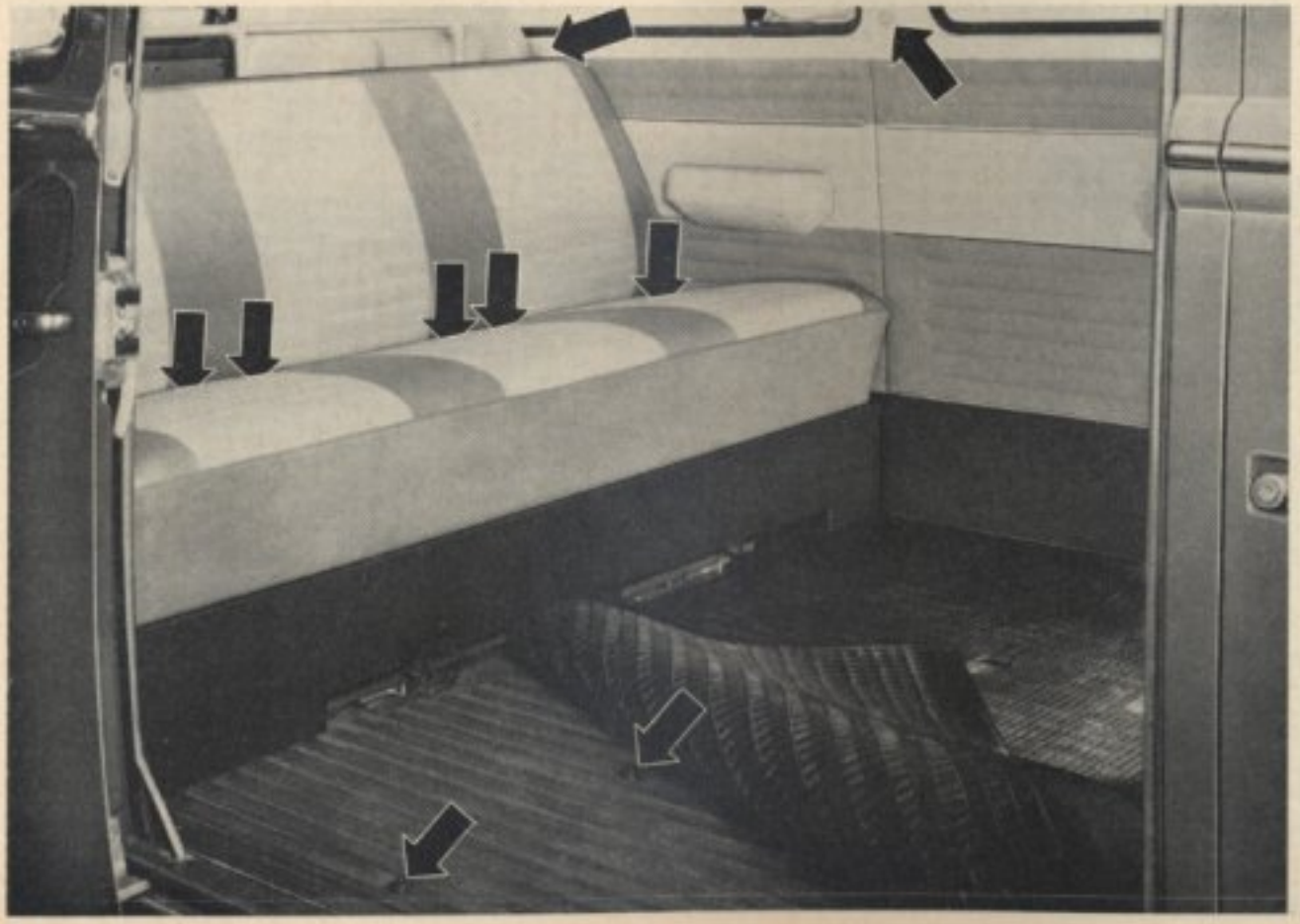


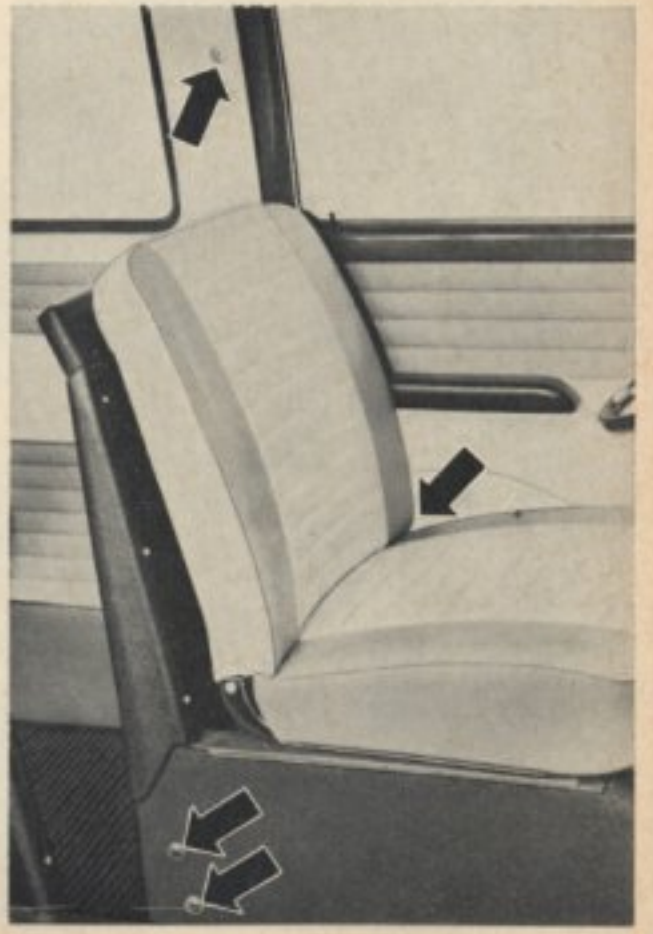
**In the passenger compartment** the part of the center bench backrest near the door can be hinged forward to make it easier to get in and out of the rear seat. To release the backrest lock, lift the knob in the side of the backrest.

If you wish to transport large bulky loads you can take the seats out of the passenger compartment. To do this, remove the side trim panels from the center seat and the front trim panel from the rear seat, unscrew the nuts and take off the clips. Take out the seats and the floor plates and remove the bolts by turning them 90°.



**Safety belts** can be obtained from any VW Dealer. All seats can be fitted with lap belts. The seats in the cab and the outer seats in the passenger compartment can be fitted with shoulder or combined lap-shoulder belts. There are eight anchor points in the cab and sixteen in the passenger compartment. The threaded holes are fitted with plugs to keep out dirt.





# In front of you - the instrument panel

Have a good look at the instrument panel and try out the various knobs and levers with the ignition switched on:

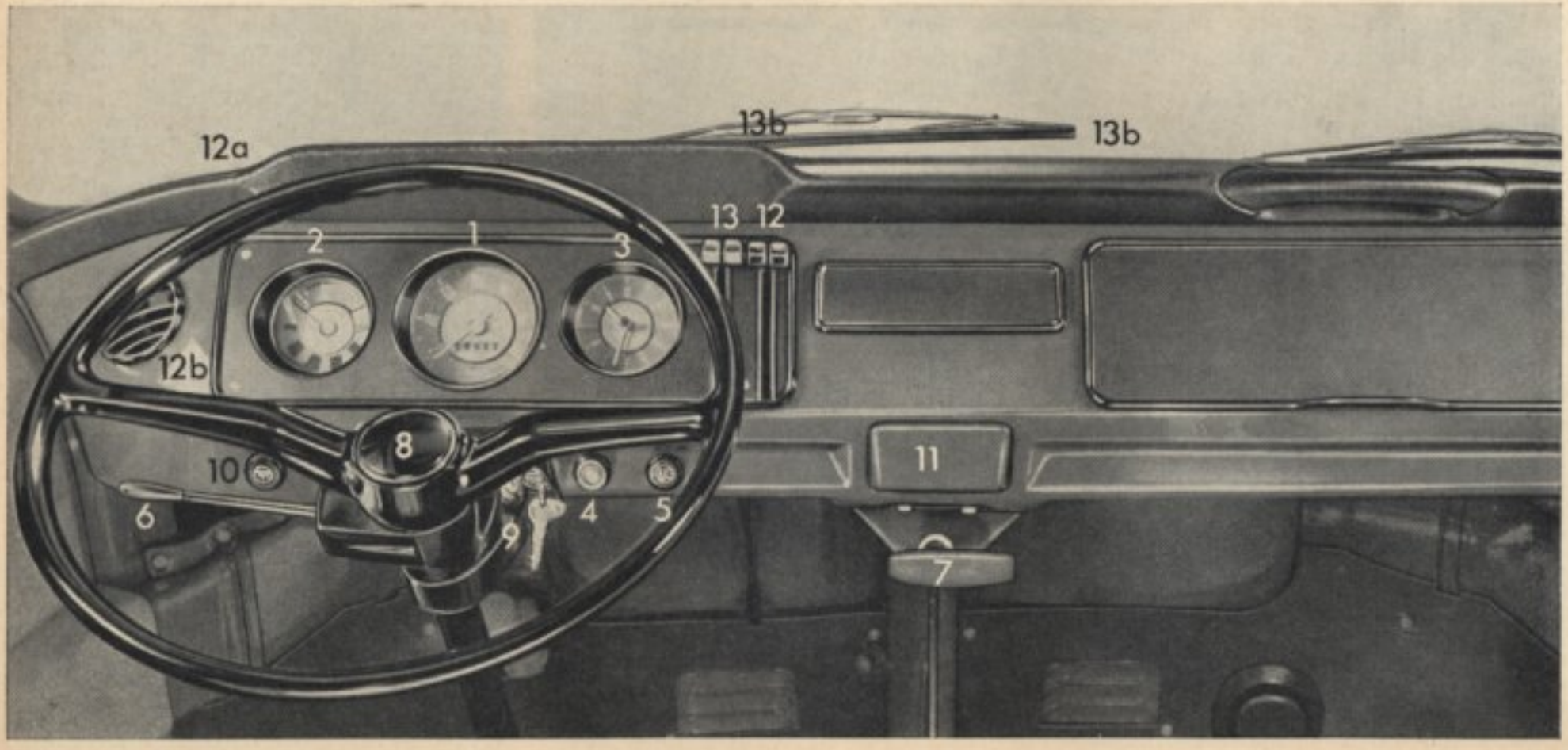
**1 - Speedometer**

**2 - Fuel gauge**

When the needle is on the "R" mark there is about 1 gallon (5 liters) of fuel left in the tank. Time to refuel at the next opportunity.

In the fuel gauge dial are the following warning lamps:

| | |
|---|---|
| dark green | — parking lights |
| blue | — headlamp high beam |
| red | — generator |
| light green | — oil pressure |
| light green arrows | — turn signals |



### 3 - Clock

The clock is wound up electrically. The hands can be set by pressing in and turning the knob in the dial center.

All models except the Clipper L have a cover plate at this location.

### 4 - Lighting switch

When the knob is pulled out to the first stop, the parking, license plate, tail and instrument lights are switched on and a green warning lamp in the fuel gauge dial lights up. When the knob is pulled out to the next stop, the headlamps are switched on as well and the green lamp goes out. The headlamp beams are switched up and down by lifting the turn signal lever. A blue warning lamp in the fuel gauge dial lights up when the high beams are switched on.

The **instrument lights** are controlled in brightness by turning the lighting switch.

### 5 - Windshield wipers and windshield washer

The two-speed wipers are switched on by turning the switch. The blades park automatically when the wipers are switched off. When the knob in the center of the switch is pressed, the washer sprays water on to the windshield.

### 6 - Turn signal switch

Lever forward — right turn signals
Lever to rear — left turn signals

The turn signals are cancelled automatically after taking a corner.

Lever lifted towards steering wheel — headlamp beams up and down.

When the lights are not on or only the parking lights are on, the headlamps can be flashed by lifting the lever.

### 7 - Handbrake

To apply the handbrake, just pull the handle out.

To release, turn handle to the right and push it forward.

### 8 - Horn

### 9 - Steering — ignition lock

1 — Ignition off — steering locked
2 — Ignition off — steering free
3 — Ignition on
4 — Starting


**Important:** Remove key from lock only when vehicle is stationary.

### 10 - Push/pull knob for interior light

When the knob is pulled out, the light in the passenger or load compartment can also be switched on and off with the switch built into the lamp.

### 11 - Ashtrays

To remove the ashtray, press leaf spring down and pull ashtray out.

**The ashtray** — 11a — in the passenger compartment is removed by opening it and lifting it out of the housing at the bottom first. To insert it, hook it into the leaf spring at the top first and then press it into the housing.

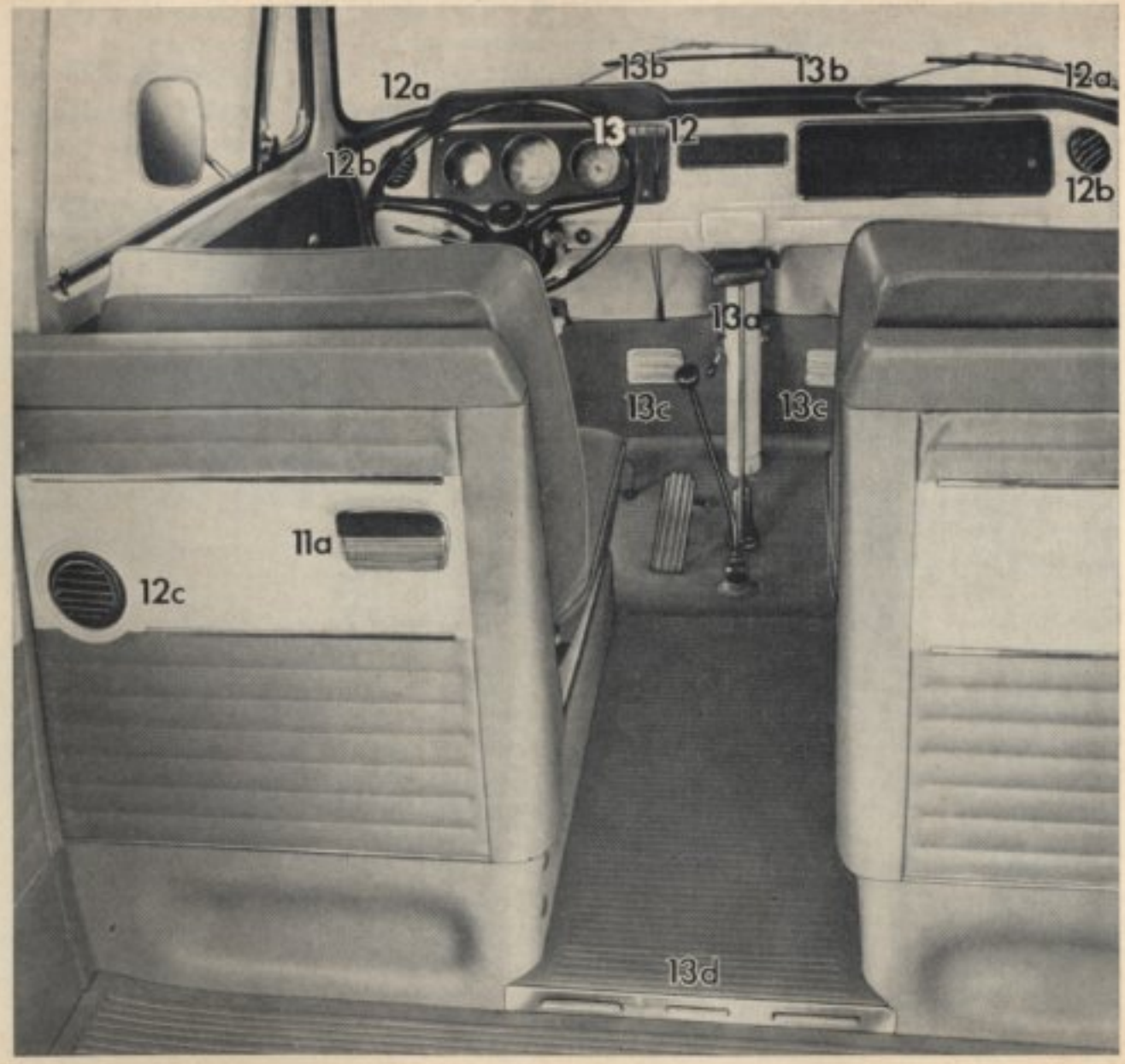
## 12 - Fresh air control levers

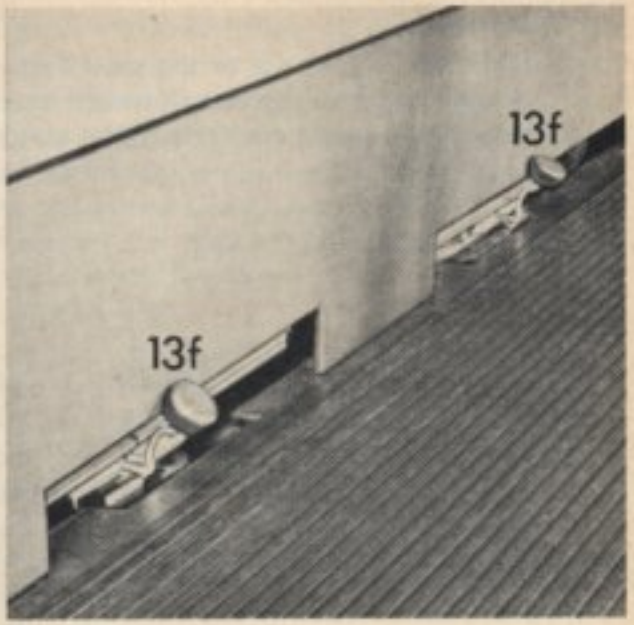
With the two blue levers in the instrument panel, you can control the fresh air ventilation for each side of the vehicle separately.

Levers up — fresh air intake closed
Levers down — fresh air intake open

The air enters at two vents — 12a — at the lower edge of the windshield and through two round vents — 12b — on each side of the instrument panel. The round vents can be turned to direct the air stream as required and each vent has a flap built in so that the flow of air can be regulated.

The Clipper L and Clipper models have two further round vents — 12c — on the back of the front seats.




## 13 - Heating control levers

With the two red levers in the instrument panel, the flow of warm air can be controlled separately on each side of the vehicle.

Levers up — heat off
Levers down — heat on

The distribution of warm air inside the body can be regulated as required:

The lever — 13a — on the front panel controls the distribution of warm air in the cab: If you push the lever down, the warm air comes out of the defroster vents — 13b — at the lower edge of the windshield; if the lever is pushed up, the warm air comes out of the vents at footlevel — 13c. The lever can naturally be set to any intermediate position.

Three further warm air outlets are fitted, according to model, in the passenger or load compartment:

The outlet — 13d — in front of the center seat supplies warm air if the knob — 13e — under the driving seat is pulled out with the heating on.

Warm air is also supplied to the two outlets under the rear seat — 13f — when the heating is on. The levers must be pushed inwards to open the warm air flaps.

At low temperatures it is advisable to leave all the warm air flaps in the passenger compartment closed when first moving off and direct the flow of warm air to the defroster vents with the regulating lever — 13a. This increases the flow of warm air to the windshield and helps to prevent steaming up when the air humidity is high. As soon as the windshield is clear the other outlets should be opened so that the interior of the body heats up as quickly and uniformly as possible.

# Above you

### 1 - Sun visors

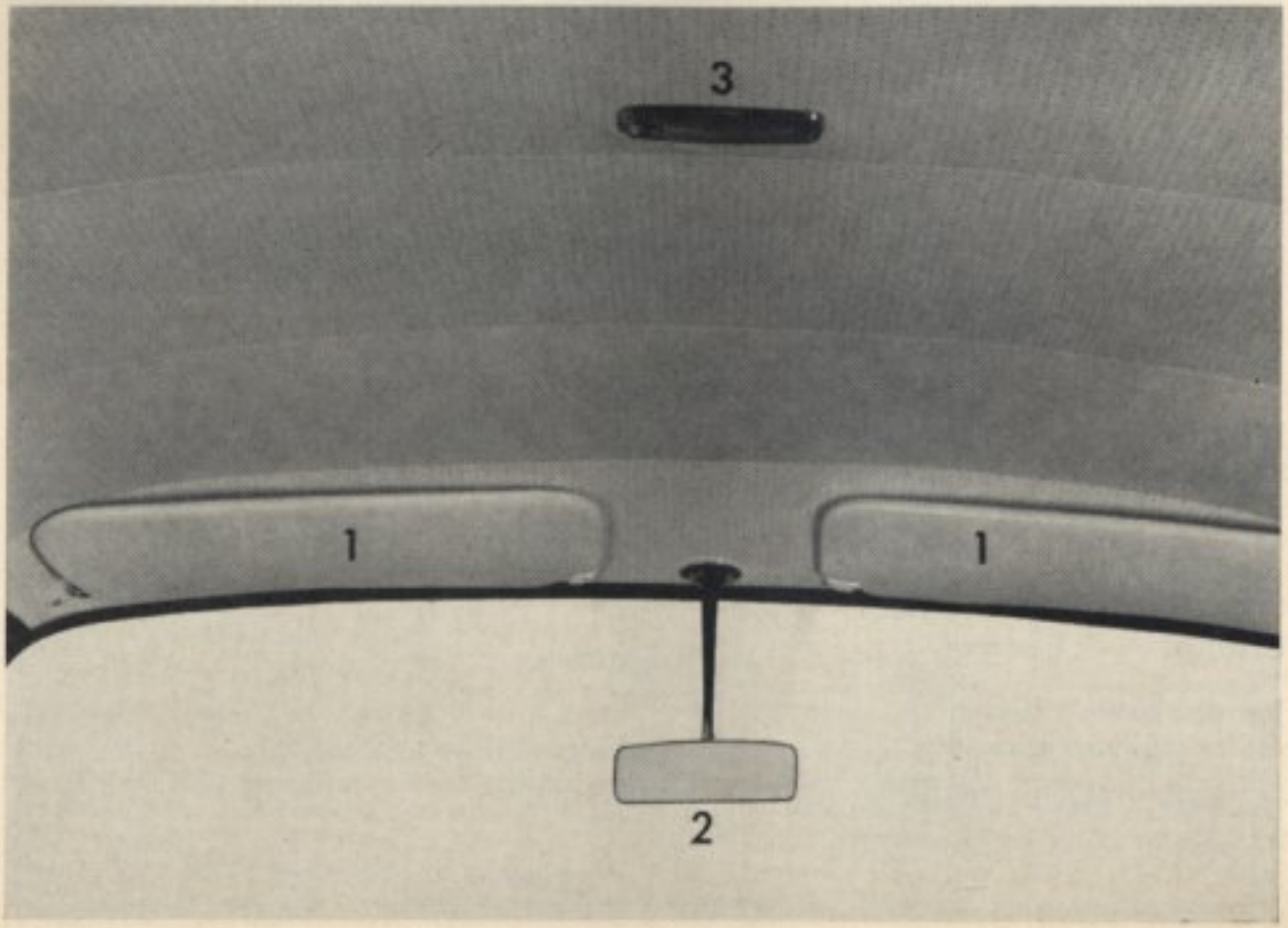
You can pull the visors out of the mountings near the mirror and swing them towards the door windows to prevent dazzle from the side.

### 2 - Rear view mirrors

Inner and outer mirrors are mounted so that they can be set to give clear vision to the rear at all times.

### 3 - Cab light

The cab light is switched on with the switch on the lamp itself.



# In the footwell

**1 - Clutch pedal**

**2 - Brake pedal**

**3 - Accelerator pedal**

**4 - Gearshift lever**

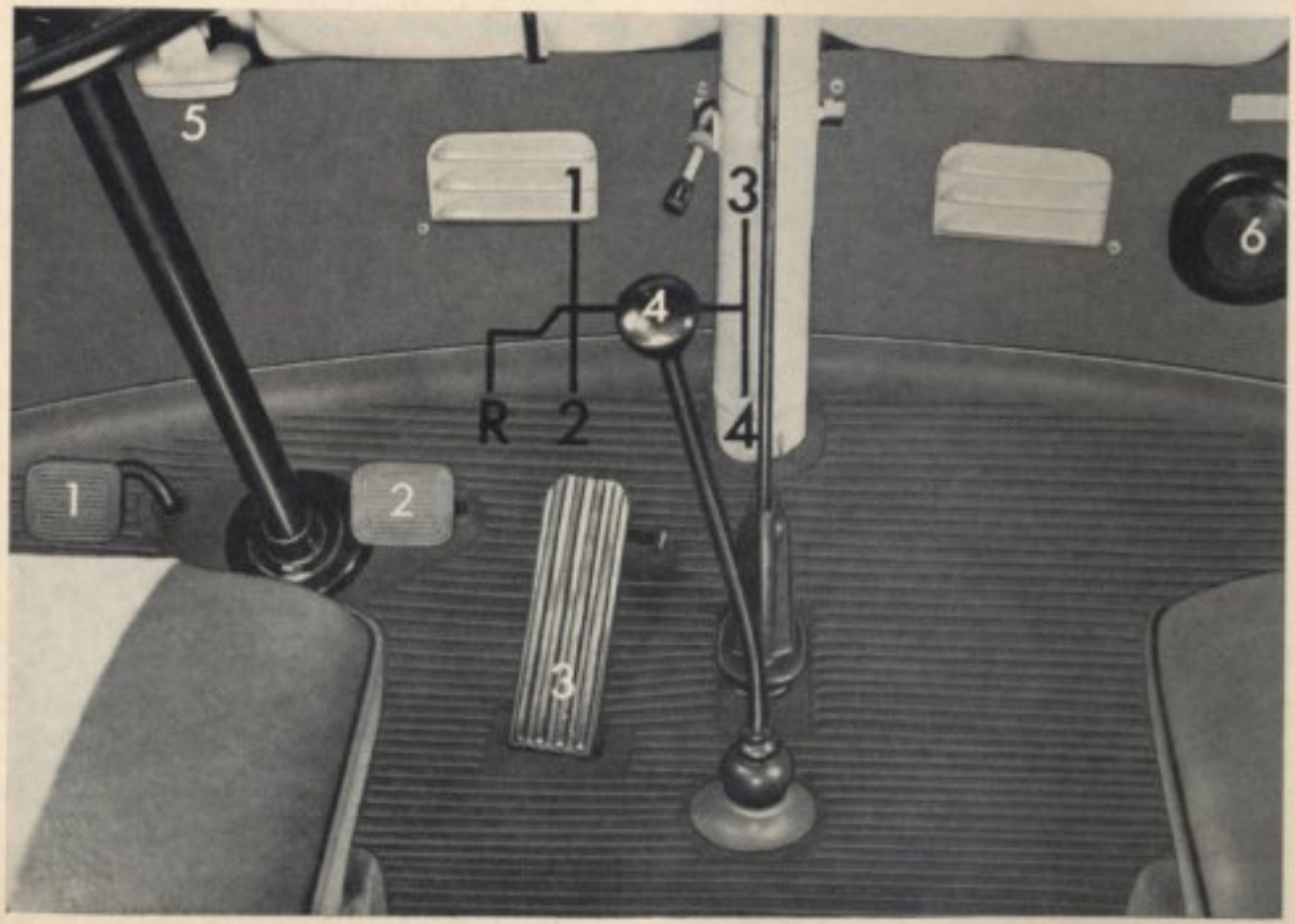
Reverse gear has a lock to prevent it from being selected accidentally. To engage reverse gear, press the lever down first then move it to the left and to the rear.

Do not forget that reverse gear must only be engaged when the vehicle is stationary.

**5 - Brake fluid reservoir**

The fluid should always be level with the upper edge of the retaining strap. If the level drops below the lower edge of the strap after the vehicle has been in use for some time, have your VW Dealer check the brake system.

Brake fluid is hygroscopic. Too high a water content in the brake fluid becomes detrimental to the entire brake system after a period of time so the brake fluid should be renewed about every five years. Afterwards the system must be bled.




**6 - Container for windshield washer**

To fill the container, remove the cover first, then screw the cap off. The container can be filled with water until it overflows, there is always room for sufficient air to operate the washer. The maximum air pressure is 42 psi (3 kg/cm²).

It is advisable to add a cleaning solution to the water because clear water alone does not usually clean the windshield quickly and properly. If enough of this cleaning agent is put in, it also acts as an anti-freeze solution. Details of the mixing proportions are given in the list of cleaning materials on page 25.

Methylated spirits can also be used as anti-freeze agent. In this case a mixture of 1 part meths to 3 parts water will protect the water from freezing down about —12° C (10° F).

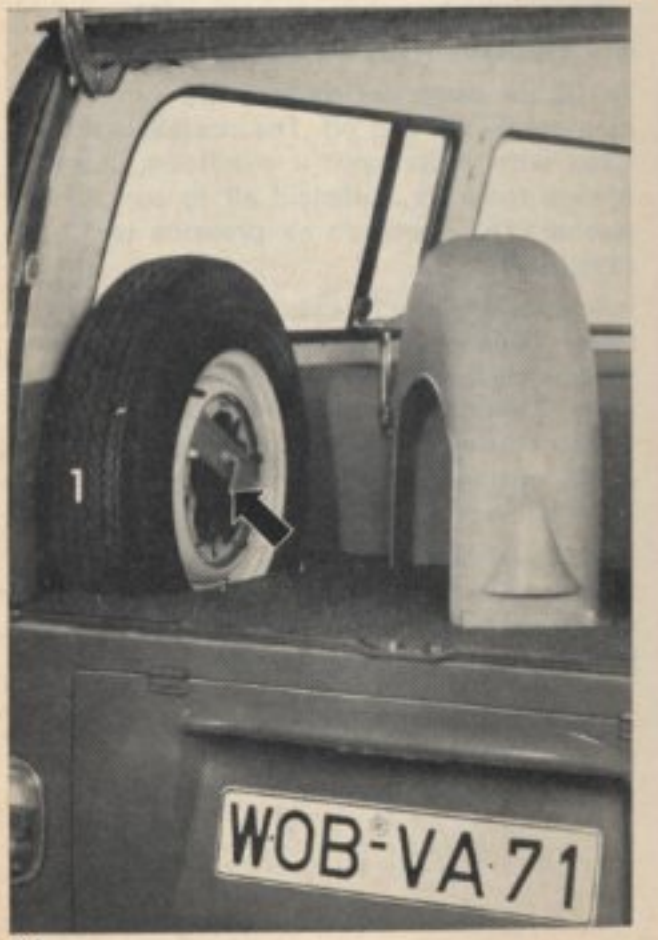
# These points are also important

### 1 - Spare wheel

Have the air pressure in the spare wheel checked from time to time. It is advisable to inflate it to the highest pressure you are likely to need as it is easier to release some air when the wheel is fitted than to add air.

On vehicles with the passage between the seats in the cab, the spare wheel is located in a recess in the rear load surface.

On the models with the full width seat in the cab, the spare wheel is stowed under the cab seats.





### 2 - Jack

The jack is secured in position under the front passenger seat. It can only be fixed firmly if the lifting arm on the jack is against the embossed mark (arrow).

The proper way to use the jack is described on page 28.

### 3 - Tools

The tool roll is also located under the front passenger seat.

It contains:

1 fan belt

1 wheel cap remover

1 pair of combination pliers

1 screwdriver with reversible blade for slotted and Phillips screws

1 open-ended wrench 8 mm and 13 mm

1 double-ended socket for fan pulley, wheel bolts and jack

1 socket with short bar for spark plugs

1 socket 13 mm

1 long bar for double-ended socket and jack

**Now you know your vehicle fairly well.**

**For what to do before moving off and when on the move, see pages 17 to 19.**

# Before moving off, check ...

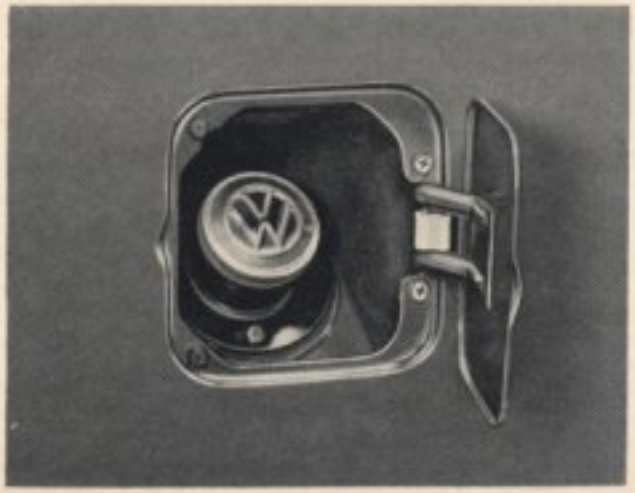
**the fuel, the brakes, the lights and, at regular intervals, the oil level in the engine and the tire pressures.**

The **fuel tank** holds about 13 gallons (60 liters) which is sufficient for approximately 300 miles (500 km).

The filler neck is under a small flap on the right-hand side of the vehicle above the rear wheel housing.

The choice of fuel is left entirely to you. The Volkswagen Transporter will run satisfactorily on all normal fuels which fulfil the octane requirements of the engine (91 octane).

If regular fuels with adequate anti-knock properties are not available, it is quite in order to use premium fuels or a mixture of both types.



**The brakes** should be applied once or twice just after moving off, to see that they are working properly.

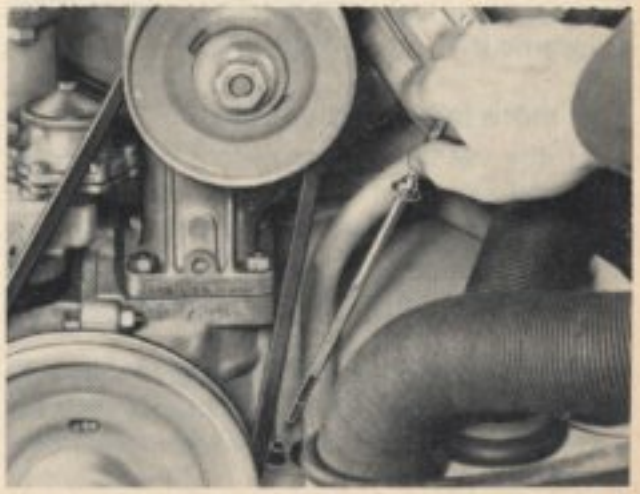
1 - Please remember that all brakes are subject to a certain amount of wear which causes the pedal free travel to increase gradually in the course of time. It may be necessary to have the brakes adjusted in a VW workshop in between the normal maintenance services. This applies particularly to vehicles which are driven frequently in city traffic and for short distances.

2 - Your VW Transporter is fitted with a dual circuit brake system which means that the hydraulic system is divided into a front wheel circuit and a rear wheel circuit which can each operate independently. If one circuit fails — you will notice this immediately due to the sudden increase in pedal free travel — take the vehicle to a VW workshop. You can still stop the vehicle with the other brake circuit but the braking distance becomes somewhat longer.

**The lights** include headlights, rear lights, license plate light, turn signals and brake lights.

The ignition must be switched on to check the turn signals and brake lights. If a turn signal is defective, the warning lamp in the fuel gauge dial flashes much quicker than usual. The brake lights should work when the brake pedal is depressed.

**The oil level** should be between the two marks on the dipstick and must never fall below the lower mark. Wipe the dipstick clean before checking.
The vehicle must be on a level surface when the oil is checked, otherwise the dipstick reading will be inaccurate. Do not check the oil immediately after stopping the engine because the oil in circulation takes at least five minutes to drain down to the bottom of the crankcase.



To top up, select a good brand of gasoline engine HD oil. It is an advantage to use the same brand whenever possible but sometimes the mixing of HD oils from different manufactures cannot be avoided. This will not damage the engine. Further details of the viscosity grades are given on page 39.

**Tire pressures**

| | Clipper L | Ambulance | all other Models |
|---|---|---|---|
| Front | 28 psi (2.0 kg/cm²) | 28 psi | 28 psi |
| Rear: | | | |
| up to ¾ payload | 28 psi | 28 psi | 35 psi (2.5 kg/cm²) |
| with full load | 35 psi | 28 psi | 41 psi (2.9 kg/cm²) |
| Spare wheel | 35 psi | 28 psi | 41 psi |

For prolonged high-speed driving, increase the pressures by 3 psi (0.2 kg/cm²).

**Two more important points:**

1 - If the vehicle is used mainly in very dusty conditions, the oil bath air cleaner must be checked frequently, even daily if necessary.

How this is done is described on page 43.

2 - Never drive the vehicle with the battery disconnected because this can damage the electronic components in the electrical system.

# Starting the engine

Before turning the ignition key, make sure that the gear shift lever is in neutral.

**At temperatures above freezing point** or when the engine is still warm, depress the accelerator pedal slowly while operating the starter. When the engine is very warm, depress pedal fully but do not "pump" it.

**At temperatures below freezing point** and when engine is cold, depress the accelerator pedal fully once and then release it so that the automatic choke can work. Then switch ignition on and start **immediately.** Declutch so that the starter only has to turn the engine.

As soon as the engine starts, release the ignition key so that the starter is switched off.

Do not try to warm the engine up by letting it idle with the vehicle stationary — drive off straight away.

Do not race the engine while it is still cold.

If the engine does not start the first time, the ignition will have to be switched off and then on again because there is a non-repeat lock in the switch which prevents the starter from being operated when the engine is running and thus being damaged.

**The warning lamps** in the fuel gauge dial which come on when the ignition is switched on, go out when the engine starts:

**The red warning light for the generator and cooling** shows thus that the belt is in order and the generator working. If this light comes on when you are driving, stop at once and check the belt which drives the generator. When this belt breaks, the engine cooling ceases to work. The proper way to fit a new belt is described on page 29.

If the generator stops charging for any other reason, you can drive on but try to get the vehicle into a workshop as soon as possible because the battery will soon run down.

**If the green warning light for the oil pressure** comes on while driving however, stop at once because the flow of lubricating oil in the engine may have ceased. Check the oil level first. Should the cause of the trouble be elsewhere, you are advised to get expert assistance.

**Be careful when running the engine in confined spaces. Ensure that there is ample ventilation so that the poisonous exhaust gases can escape.**

You can drive your Volkswagen at full speed from the first day. There are, however, certain permissible speed ranges for the various gears:

| | kph | mph |
|---|---|---|
| 1st gear | 0 — 20 | 0 — 15 |
| 2nd gear | 10 — 40 | 10 — 25 |
| 3rd gear | 20 — 70 | 15 — 45 |
| 4th gear | 40 —105 | 25 — 65 |

When a particular traffic situation makes it essential to move rapidly, you can accelerate to 30 mph in 2nd gear and 50 mph in 3rd gear for brief periods. Bear in mind, however, that full throttle acceleration puts fuel consumption up considerably. It is more economical to drive smoothly and keep the top speed fairly constant. Very fast, racy-sporty driving, alternating between full throttle and hard braking will mean more frequent visits to a gas station, not to mention increased tire and brake lining wear.

You can drive very economically between:
10 and 30 kph in 2nd gear (10 and 20 mph)
20 and 50 kph in 3rd gear (15 and 30 mph)
40 and 75 kph in 4th gear (25 and 45 mph)

Just a few words about the clutch while we are on the subject of driving. The clutch is a very hard worked part of the vehicle. A good driver slips the clutch as little as possible when moving off and changing gear. He always depresses the clutch fully when changing gear, he changes down into the appropriate gear in queues and city traffic instead of slipping the clutch and never uses the clutch pedal as a "rest" for his left foot.

Volkswagen automobiles have first class brakes which can stop the vehicles in the shortest possible distance. But do not forget that the braking distance increases very rapidly as the speed increases. At 60 mph for example it is four times longer than at 30 mph. Apply the brakes in good time whenever possible but do not use too much force, locked wheels increase the braking distance.

Water reduces the coefficient of friction of the tires and increases the braking distance but we cannot do anything about this. You can, however, take care when driving, remain at a safe distance behind preceding vehicle particularly when roads are wet and slippery. Safety first is the motto.

**That just about covers the operation of the car and how to drive it properly.**

**The following pages deal with tips for winter driving, breakdowns and all there is worth knowing about the lubrication and maintenance of the vehicle.**

# When it snows and freezes

Your car has two features which you will appreciate in the winter: Air cooling and heating. You can leave your car out in the bitter cold without fear — the air-cooled engine will always start readily and supply warm air for the interior of the body.

**The brakes** may freeze up in the winter if water gets into the drums due to splashing or condensation, so leave the car in 1st or reverse gear when parking it and do not apply the handbrake.

When parking on steep hills, turn the front wheels against the kerb as well to stop the vehicle rolling away. If there is no kerbstone, it may be advisable to place a stone or wedge under a wheel.

**Tires** with badly worn treads are very dangerous particularly in the winter so ensure that they are replaced in good time.

M+S tires with special heavy treads give good roadholding in snow and slush. They can be fitted to all four wheels but never use them on the front wheels only.

Better still are M+S tires with spikes which increase the safety margin even on hard snow and ice. These tires should always be fitted on all four wheels.

Tires of the correct carcass strength must be used even when fitting winter tires. Please pay attention to the ply rating on the tire wall when buying new tires.

The specific characteristics of winter tires can be improved by raising the tire pressures to 0.2 kg/cm² (3 psi) above the normal operating pressure for the tire concerned. M+S tires with spikes should be run at moderate speeds when new in order to give the spikes time to settle.

In general, winter tires only have real advantages when conditions on the road are really wintry. For safety reasons, it is not advisable to drive a vehicle fitted with any type of winter tire at top speed. You cannot expect a winter tire to have the same degree of adhesion on dry, wet or snow-free roads as a normal tire. Furthermore, under these conditions M+S tires wear rapidly, particularly at high speeds.

**Snow chains** can be fitted to normal and winter tires on the rear wheels only. Only thin chains which do not stand clear of the tire tread and inner side wall more than **15 mm** including tensioner, are suitable. When driving over long stretches of road which are free of snow, the chains should be removed. They serve no useful purpose here but merely damage the tires and wear out quickly.

**Engine oil** of SAE 30 grade will tend to thicken at temperatures around freezing point and may cause difficult starting. As soon as winter temperatures are expected, change over in good time to a thinner grade of engine oil. Details of the various oils to be used are given on page 39.

If you only drive mainly short distances and in city traffic in the winter we recommend that you have the engine oil changed at shorter intervals, say every 2500 km (1500 miles). Should you only drive a few hundred miles a month under these conditions, it is advisable to have the oil changed every 6 to 8 weeks. At other times these additional changes are unnecessary and uneconomical.

In countries with arctic climates and temperatures below about —25° C (—13° F) the engine oil should be changed every 1250 km (750 miles).

**Transmission oil** of SAE 90 grade can generally be used all the year round. Only in countries with arctic climates is it necessary to use the thinner SAE 80 hypoid transmission oil.

When the temperature is below —13° F for long periods, it is advisable to use ATF oil in the transmission. The vehicle should, however, only be driven with this oil during the cold period. As soon as the temperature rises to near freezing point, this oil **must** be replaced by SAE 80 or SAE 90 transmission oil.

**The battery** not only tends to drop in capacity as the temperature drops, it also has to work much harder in the cold weather. Quite apart from the higher current consumption when starting and using the lights more often, there are numerous other electrical items used mainly in the winter, such as heated rear windows and heater boosters. A really cold battery which may in any case not be fully charged has only a fraction of the capacity that a battery at normal temperature has and this is fatal when trying to start a cold engine. Particularly if the car is only driven short distances and in city traffic, the battery should, therefore, be charged from an external source from time to time. Further details are given on page 35.

**The spark plugs** should not have excessively large gaps especially in the winter. The gap is normally 0.7 mm (.028 in.) but when the weather is very cold the gap can be **temporarily** reduced to 0.4—0.5 mm (.016—.020 in.) to facilitate starting.

**The chassis** is exposed to very arduous conditions particularly in the winter. The steadily increasing use of chemicals to de-ice the roads produces solutions which attack even the most durable paintwork after a time. The underside of the Volkswagen is sprayed with a wax-based compound to protect it from these influences. It is advisable to examine the protective film at the beginning of the winter and have it repaired by respraying so that the full protective effect is retained. Do not apply oily anti-corrosion compounds to the wax-coated surface.

**Door locks** can freeze up in winter if water gets into the lock when washing the vehicle so do not aim the water jet directly at the locks. It is a good idea to cover the keyholes up beforehand.

A frozen lock can be opened by warming the key well before inserting it. An anti-freeze solution or glycerine should then be squirted into the lock cylinder as soon as possible

**It is a good idea** to carry a shovel or a short-handled spade in the car to clear away snow if you get stuck. A small hand brush for sweeping snow off the vehicle and a plastic scraper for the windshield are also useful.

# A clean smart vehicle looks better

We have provided your vehicle with paintwork which is not only extremely durable and has a very high gloss but which also has a long service life. This has been achieved by special chemical treatment of the body metal and the use of a four layer synthetic resin paint technique.

But even the finest paint requires a certain amount of care. This is easy to appreciate if you consider for a moment the influences to which the paint is exposed. Sunlight, rain, industrial fumes, soot, dirt and dust are constantly working on and attacking the paintwork.

In the winter all parts of the vehicle are subjected to even more severe climatic conditions and the effect of aggressive salt solutions. It is advisable to clean and wax the vehicle more frequently in this period. Every VW Dealership has stocks of car cleaning materials. These materials have been tested by us and found to give the best results. The order numbers of these materials are given on pages 24 to 25.

**Wash** the new vehicle frequently with clear water particularly in the first two or three months as this will help to harden the paintwork. Use a soft sponge or hose brush for the body, a long handled brush for the wheels and plenty of water. Spray the body panels and wheels with a fine soft spray first to loosen the dirt, then start at the top and wash downwards. Rinse the sponge out frequently to avoid scratching the paint.

Later on the vehicle should always be washed when it is dirty. The longer the dirt is left on the paint the greater is the risk of it damaging the glossy finish. The dirt particles can have a chemical effect on the paint surface or they can cause scratches if rubbed into the paint. If the dirt cannot be removed with clear water, a suitable shampoo can be added to the water. Afterwards, rinse all traces of the shampoo off well with clear water and then leather the vehicle dry to avoid water spots.

**Waxing** should be carried out for the first time after about 8 to 10 weeks. Waxing is a means of putting back into the paint certain substances which keep it flexible and are lost in the course of time due to weathering and washing particularly when you use a detergent. The wax coating seals the pores of the paint and makes it water-repellent.

The paint should be re-waxed when water remains in large patches on the surface and does not form beads and roll off. Regular waxing will ensure that the paint retains its original high gloss for a long time.

Another way of waxing the paint is to use a wash-and-wax solution. This is easier than waxing in the normal way. Just wash the vehicle first then put the wash-and-wax solution in a bucket of water and apply it to the paintwork. All that remains is to leather off the paint until it is dry. This type of wax will only protect the paint adequately if it is used every time the vehicle is washed and the interval between washes is not more than two or three weeks.

**Polishing** should only be done when the paint has lost its gloss due to weathering or lack of

proper care and the gloss can no longer be restored by waxing in the normal way. After treatment with polish, wax the paint thoroughly to retain the gloss which has been obtained.

**Tar spots** tend to penetrate into the paint in a very short time. They should be removed as soon as possible, preferably with a tar remover. Afterwards, the area concerned should be washed with a solution of shampoo and water and rinsed well to remove all traces of tar remover.

**Insects** tend to stick on the front of the vehicle and on the windshield in the summertime. These should also be washed off the paint as soon as possible. When really dried on, the insects can be removed with an insect remover. The paintwork should also be washed, rinsed and leathered off afterwards.

**Parking under trees.** Vehicles which are parked under certain trees in the summer are often found to be covered with sticky spots. These spots can be taken off easily with a shampoo if the treatment is not delayed too long. It is advisable to wax the paint afterwards.

**Chrome parts** should be treated with a chrome cleaner or polish. To give lasting protection in the winter, the chrome parts can be coated with one of the patent chrome protection compounds which form a hard film. The best way to apply these compounds is by spraying. The film can be removed by washing with kerosene, then washing with shampoo and rinsing to remove all traces.

**The windows** can be cleaned with a sponge and clear water. Always use a special clean leather to dry the windows. This leather must not be used on the paintwork in any circumstances as most paint cleaners and polishes contain ingredients which will cause unpleasant streaks to appear on the windshield when it rains, even if only the smallest trace is present. These streaks can only be removed with a good windshield cleaner. Do not forget the wiper blades.

**The windshield wiper blades** should be taken off from time to time and cleaned with a hard brush and methylated spirits or a strong detergent solution. During long dry periods particularly they tend to get clogged with tar splashes, oil and insects. New blades should be fitted once a year.

If you have a **Pick-up** with cover, please note the following point: When the cover is wet always leave it on the frame until it is dry, to prevent the material from shrinking.

## Never wash, wax or polish the car in the sunshine.

**Before waxing and polishing, the vehicle must be washed and dried thoroughly.**

# Approved car care materials for the Volkswagen

| | Material | Package and quantity | VW Part No. | Properties | How to use |
|---|---|---|---|---|---|
| Vehicle washing | Shampoo<br>Shampoo | Tin 150 cc<br>Tin 250 cc | 000 096 111<br>000 096 112 | Washes effortlessly and thoroughly. Does not harm paint. | Put 1—2 beakers of shampoo in a bucket. Squirt strong jet of water in or stir well. Wash vehicle with foam, rinse with clear water and leather off. |
| | Sponge<br>Leather<br>Hosebrush with replaceable bristles and water control-valve | 17 x 11 x 5.5 cm<br>46 x 44 cm<br>— | 000 096 151<br>000 096 155<br>000 096 157 | —<br>—<br>— | —<br>—<br>— |
| Paint waxing | Wax<br>Wax | Tin 250 cc<br>Tin 1000 cc | 000 096 011<br>000 096 012 | Protects paint from weather. Keeps it flexible and durable. | Apply thinly to clean, dry paintwork with cotton wool. Rub gently until paint shines again. |
| | Wash/wax<br>Wash/wax | Tin 150 cc<br>Tin 250 cc | 000 096 121<br>000 096 122 | Washes and waxes in one operation. Protects paint from weather for a limited period. | Wash vehicle. Shake tin well and put 1 beaker of solution into a bucket of water. Wash vehicle again with this solution and then leather dry. Do not polish. |
| Paint polishing | Paint care | Tube<br>210 grams | 000 096 021 | Cleans, polishes and protects paint and brings gloss back again. | Apply to clean dry paintwork, small areas at a time. Allow it to dry then rub with cotton wool until paint shines brilliantly. Do not polish in the sunshine. |
| | Paint polish<br>Paint polish | Tin 250 cc<br>Tin 1000 cc | 000 096 001<br>000 096 002 | Freshens up paint which has lost gloss. | Soak cotton with polish and apply to clean paintwork, small areas at a time. Remove remains with clean cotton wool and rub briefly. |
| | Polishing cotton | Bag 200 grams | 000 096 161 | — | — |
| Removal of tar spots from paint and chrome | Tar remover<br>Tar remover | Tin 150 cc<br>Tin 250 cc | 000 096 051<br>000 096 052 | Softens and removes tar and asphalt spots. | Soak cotton with polish and apply to clean dry the spots. Allow it to work for a short time then wipe tar off. |
| Removal of insects from paint, chrome and glass | Insect remover | Tube<br>80 grams | 000 096 081 | Removes insects from paint and chrome | Dampen area to be cleaned, apply insect remover by moistening cotton, let it work for a short time and rub with cotton. Do not let it dry. Rinse area well with clear water. |
| | Insect sponge | 11 x 7 x 4 cm | 000 096 083 | Removes insects from glass | Moisten sponge with water before use. |

| | Material | Package and quantity | VW Part No. | Properties | How to use |
|---|---|---|---|---|---|
| Removal of industrial fall-out from paint | Industrial fall-out remover | Bottle 500 cc | 000 096 091 | Removes industrial fall-out | Apply to clean paint with plastic sponge. Allow to work for up to 25 mins. then wash off with plenty of water. |
| Care and cleaning of chrome parts | Chrome cleaner | Tube 80 grams | 000 096 061 | Cleans, polishes and protects chromed parts | Apply thinly to clean chrome surface and polish with soft cloth. |
| | Liquid film for chrome | Tin 500 cc | 000 096 063 | Forms a durable, transparent film on the chrome | Apply evenly to dry chrome. Spray on where possible. |
| | Chrome protective film remover | Tin 500 cc | 000 096 167 | Removes film from chrome and paint | Apply solution with sponge or spray gun. Allow to work for about 5 mins. Soak sponge with solution and wipe film off. Rinse with water. |
| | Chrome grease | Tube 80 grams | 000 096 067 | Cleans and protects chrome parts | Apply thick or thin coat (according to time of year) with a soft cloth. Renew coating every time vehicle is washed. |
| Cleaning upholstery and trim of non-permeable leatherette | Plastic cleaner | Tin 200 grams | R 3 | Cleans plastic materials | Apply cleaner with damp sponge and rub off with dry cloth. |
| | | Bottle 500 cc | 000 096 072 | | Apply with soft cloth or spray gun. Allow to work for short period. Rub clean with dry sponge or cloth. |
| Cleaning windshield | Window cleaner | Bottle 200 cc | 000 096 105 | Added to water in washer it removes stubborn dirt, silicone and grease from windshield. Can be used as anti-freeze to keep washer in action in winter. Can also be used neat to remove ice from windshield. | As windshield cleaner: in the summer, add about 1/10 of contents of bottle or 1 sachet to water in washer. |
| | Window cleaner | Sachet approx. 35 cc | 000 096 101 | | As anti-freeze: At temperatures down to —15° C add entire contents of bottle to water in washer. When not so cold, reduce amount. The contents of one sachet give protection down —2° C. |
| | Anti-mist cloth | Cloth 35 x 35 cm in plastic bag | 000 096 165 | Prevents windows from misting up | Rub misted-up windows dry with cloth. |

**We recommend that spray gun 000 096 064 is used to apply liquid cleaning and protective solutions.**

**The leatherette** parts of the headlining, side trim panels and seats can be cleaned best with a soft cloth or brush. When very dirty, use a lukewarm soap solution, a plastic cleaner or a dry foam cleaner for all surfaces covered with leatherette which is not air-permeable. For the parts of seats covered with air-permeable leatherette, use only a dry foam cleaner because liquid cleaners would penetrate through the perforations into the textile backing straightaway.

Grease or paint spots should be wiped off before they dry when possible. Once dry, they can be removed by rubbing carefully with a cloth moistened with benzine. Shoe polish marks can be removed with turpentine but be careful because this will damage the dust repellent surface of the leatherette if allowed to work on it too long. Do not use trichlorethylene or paint thinner for cleaning purposes. After cleaning, rub the material dry with a soft cloth. So-called preservatives are not suitable for leatherette because they do not soak into the material and merely collect dust and make clothing dirty.

**Airing the body.** If the vehicle is left in the garage for long periods, the garage and car doors must be opened from time to time to prevent the formation of mould and damp stains inside the vehicle.

**The driver's seat:** If the driver's seat becomes hard to slide, the runners must be greased lightly at top and bottom after being cleaned with a cloth. The seat can be removed to do this by pushing it forward out of the runners.

**Door and window weatherstrips** must be undamaged and supple to ensure that they seal properly. To retain the original flexibility of the rubber, coat the weatherstrips with talcum powder occasionally.

**The tires.** In addition to checking pressures regularly and driving carefully, the following points should be remembered in connection with tires:

1 - Check tires for damage occasionally and remove foreign bodies.

2 - Keep oil and gasoline away from the tires.

3 - Try not to expose tires to strong sunshine for long periods.

4 - Replace missing valve dust caps as soon as possible.

Tires should be replaced when the tread depth is only 1 mm all round and on full tread width because this is the absolute limit for safe usage. We advise you however not to let the tires wear down to this extent as tires with treads in this condition cannot grip the road surface properly when driving at high speeds on wet roads. If you notice that the tires are wearing unevenly, get advice from your VW workshop.

For smooth running at high speeds and long tire life it is essential that the commercial vehicle wheels are also balanced statically and dynamically. As the wheels can get out of balance after being in use for some time due to natural tire wear, the wheels should be balanced every 10 000 km (6 000 miles) particularly on vehicles which are often driven at high speeds for long periods. Furthermore, a wheel should always be balanced again when a tire has been repaired. This also applies to balanced wheels when a tire lost pressure due to a faulty valve.

# Just in case . . .

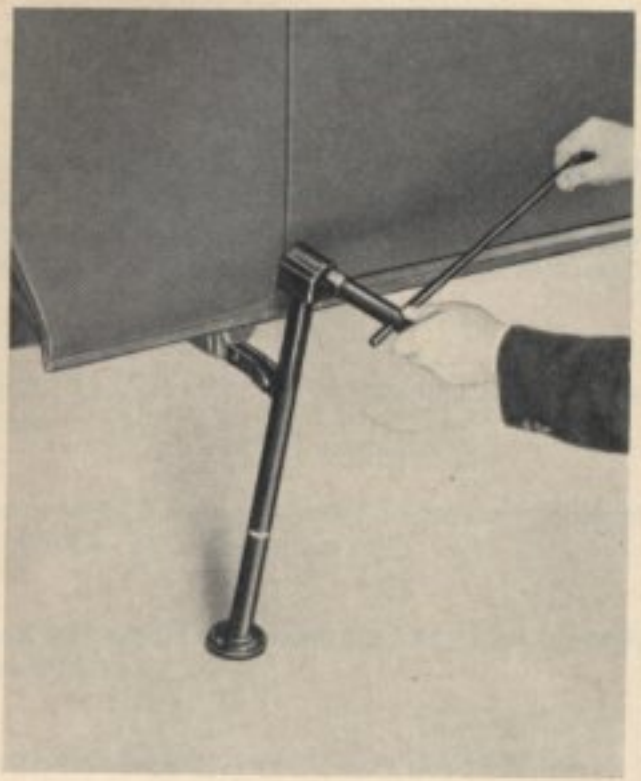
you have to deal with a small defect or a breakdown yourself one of these days we have included some information on the next few pages which should help you.

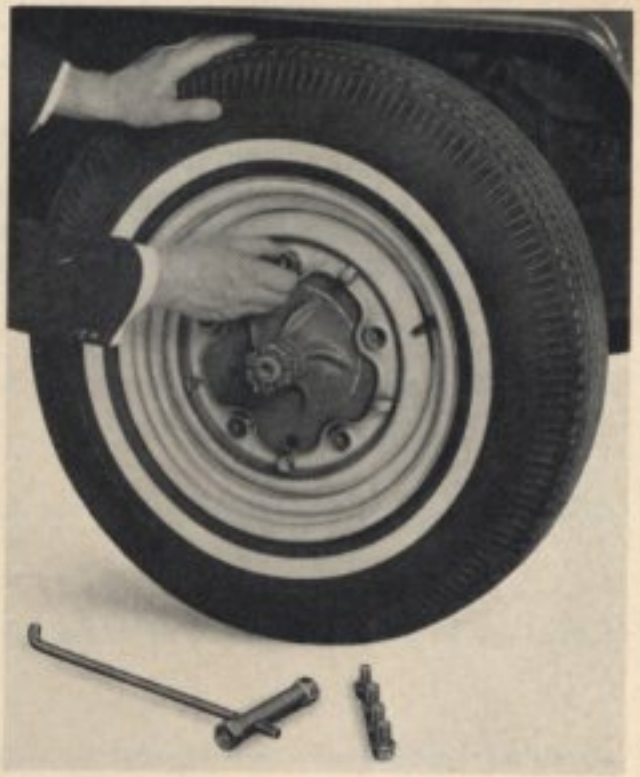
All other repairs should always be carried out by one of our service stations. The service organization of the VW factory offers you a wide-spread network of authorized workshops staffed by skilled mechanics and equipped with all the special tools and appliances required. Whenever you see the familiar VW sign on the roadside you can be sure of expert advice and quick efficient assistance.

## Wheel changing

Apply the handbrake and block wheel on opposite side to prevent vehicle from rolling.

Remove wheel cap with puller and jack bar by hooking the puller into the holes in the edge of the cap and levering against the wheel rim with the jack bar.





Loosen all wheel bolts about one turn with double-ended socket wrench and bar.

Insert jack into square tube under body and turn hexagon at top of jack until base touches ground.

Lift vehicle by turning hexagon with socket and bar. Remove wheel bolts and take wheel off.

Place spare wheel against drum and raise or lower vehicle as necessary until the holes in the wheel are roughly in line with the threaded holes.

Insert one bolt and tighten it until the wheel can be swung round to align the other holes with the holes in the brake drum.

Insert remaining bolts.

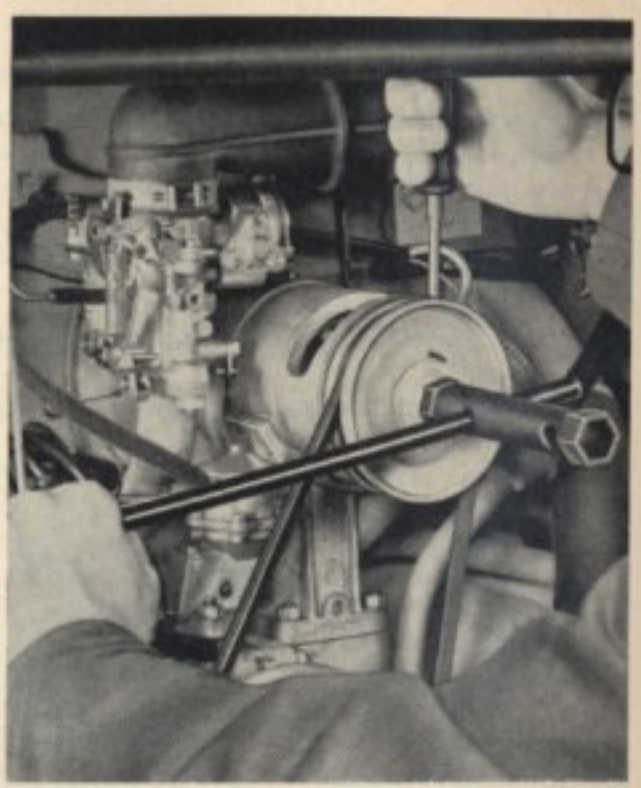
Tighten bolts until the wheel, centered by the spherical shape of the bolt heads, contacts evenly all round.

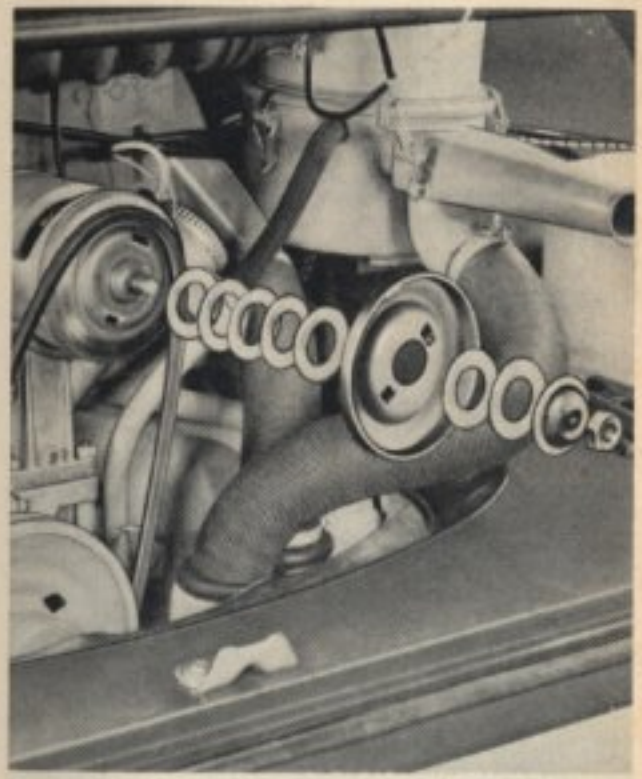
Lower the vehicle and tighten the wheel bolts evenly and diagonally.

Install wheel caps by giving them a smart blow with the hand and, if necessary, remove trim ring carefully with a screwdriver from wheel with flat tire and insert it in spare wheel.

Please have the wheel bolts checked with a torque wrench at the next filling station or workshop. The torque should be 86 lb.ft. (12 mkg).

Do not forget to check the tire pressure in the wheel which has been fitted. See list of tire pressures on pages 18 or 46.





## Adjusting or replacing the fan belt

The fan belt tension is correct when the belt can be pressed inwards about 1.5 cm (.6 in.) at the center. The belt must not be too tight or too slack. New belts may stretch slightly at first so they should be checked after about 1000 km (600 miles) and the tension corrected if necessary.

To adjust the belt, remove the rear part of the pulley on the generator. When loosening and tightening the nut, place the screwdriver in the slot in the front half of pulley and support the screwdriver against the upper screw in the generator housing. To fit a new belt, the cover plate for the crankshaft pulley must also be removed after taking out the three screws.

The belt is tensioned by varying the number of washers between the pulley halves. Taking washers out increases the tension, putting them in decreases it.

Even though the belt normally has a long service life, it is advisable to carry a spare on the vehicle.

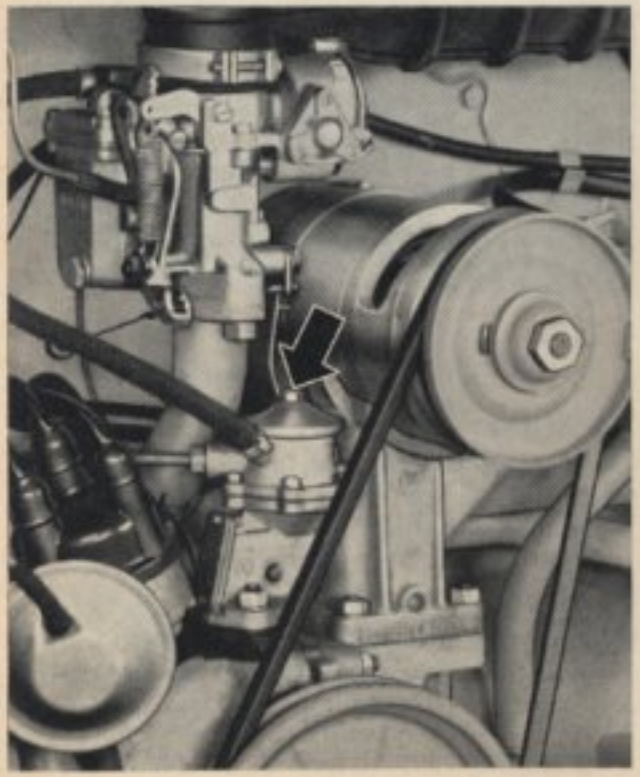
## Cleaning fuel pump filter

Install clip on fuel hose between tank and engine compartment.

Remove screw in cover on pump and take cover off.

Take filter out and clean it in benzine.

When installing filter, do not forget the gasket for the cover.



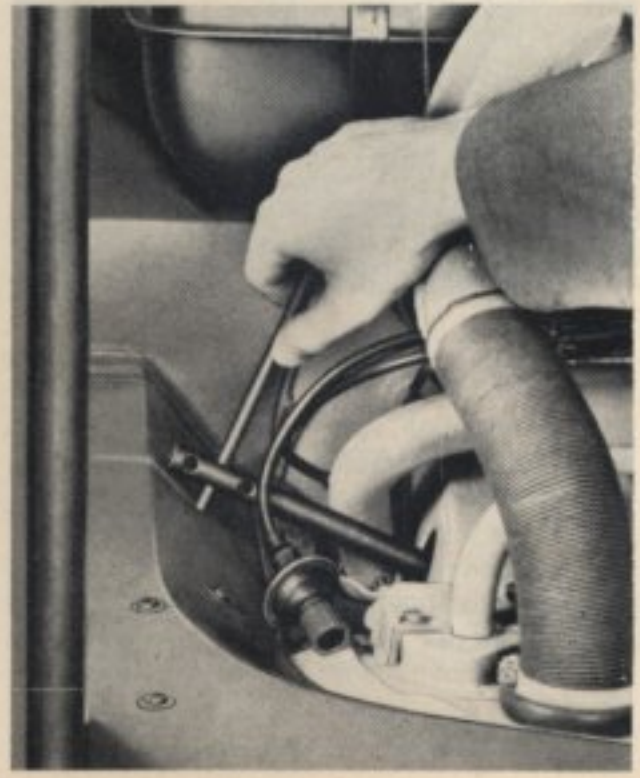
## Removing and installing spark plugs

Pull connector off and screw plug out with socket wrench and bar.

Dirty plugs should be cleaned with a sand blaster but in an emergency the carbon can be removed with a chip of wood. Please do not use a wire brush. The plugs should also be clean and dry on the outside as well, in order to avoid shorting and tracking. The gap can be set by bending the ground electrode. The gap should normally be 0.7 mm (.028 in.) but when the weather is very cold the gap can be temporarily reduced to 0.4—0.5 mm (.016—.020 in.) to facilitate starting.

Take care not to crossthread the plugs when inserting them and tighten them firmly but do not overtighten.

New plugs should be fitted every 20 000 km (12 000 miles).



## Aiming the headlights

The tire pressures must be correct.
If a headlight aiming device is not available, proceed as follows:

### 1 - Headlight bulb

Position the vehicle on a level surface 5 m (16 ft. 5 in.) away from a vertical wall.
The headlights can be aimed with the vehicle fully loaded or when it is unladen:

a - One person or 70 kg (154 lbs) on driving seat and vehicle with maximum permissible load. The load must be evenly distributed.

b - Vehicle unladen. One person or 70 kg in driving seat.

Draw two crosses with setting lines on the wall to the measurements in sketch 1. The longitudinal center line of the vehicle must be aligned exactly with the center between the two crosses and at right angles to the wall.

A - Lateral aim B - Vertical aim



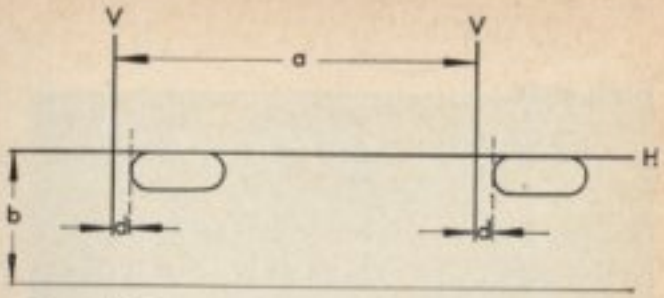
Sketch 1

a = 1080 mm (42½ in.)
b = Height of headlamp center from ground.
c = 50 mm (2 in.) at a distance of 5 m (16 ft. 5 in.) from screen.

Aim the headlights individually by turning the screws — A — and — B — in the headlight rim with low beam switched on. Cover up the second headlight.
The headlights are correctly aimed when the light-dark border line is horizontal on the adjusting line to the left of the cross and the angle in the light-dark border line is exactly on the cross.

### 2 - Sealed-Beam unit

On Volkswagen Transporters with Sealed-Beam headlights use sketch 2 and aim beams as follows:
Position the vehicle on a level surface 7.6 m (25 ft.) away from a vertical wall. The drivers seat must be loaded with one person or a weight of 70 kg (154 lbs.).
Draw three setting lines on the wall to the measurements in sketch 2. The longitudinal center line of the vehicle must be aligned with the center between the two vertical lines and at right angles to the wall.
Loosen the screw in the middle of the trim ring and take the ring off.



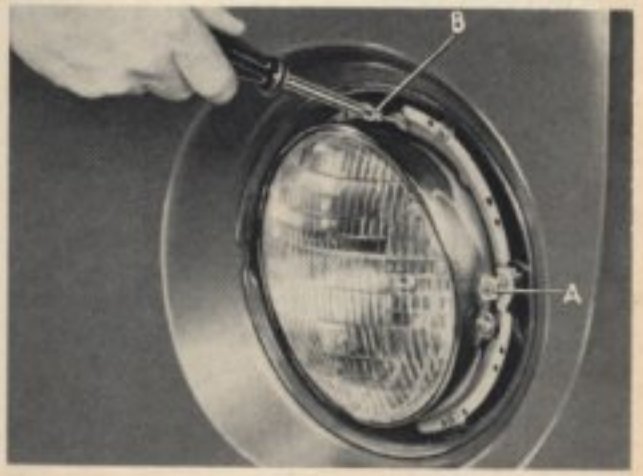

Sketch 2

a = Distance between headlights = 42½ in.
b = Height of headlight centers from ground at a distance of 25 ft. from screen.
d = 50 mm (2 in.).

Aim the headlights individually by turning the two aiming screws — A — and — B — with low beams switched on. Cover up the second headlight.

The headlights are correctly aimed when the top edge the high intensity zone is on the horizontal line H and the left edge is 2 in. to the right of the vertical line V.

A - Vertical aim B - Lateral aim



## Bulb chart

| | V = Volts<br>German designation | W = Watts<br>Part No. |
|---|---|---|
| Headlight bulb | A 12 V 45/40 W | N 17 705 3 |
| Parking light | HL 12 V 4 W | N 17 717 2 |
| Turn signal, front and rear | RL 12 V 21 W | N 17 732 2 |
| Stop/tail light | SL 12 V 21/5 W | N 17 738 2 |
| Licence plate light | G 12 V 10 W | N 17 719 2 |
| Warning and instrument lights | W 12 V 1,2 W | N 17 751 2 |
| Interior light | K 12 V 10 W | N 17 723 2 |
| **Ambulance** | | |
| Back-up light | 12 V 25 W | N 17 733 2 |
| Spot light | 12 V 35 W | 211 941 253 |
| Red Cross sign | F 12 V 15 W | N 17 716 2 |

If your car is equipped with Sealed-Beam headlights, the deviations from the above chart are as follows:

| | | |
|---|---|---|
| Sealed-Beam unit | 6012 (US) | 111 941 261 A |
| Front turn signal/parking light, Rear turn signal and stoplight/taillight | SL 12 V 21/5 W | N 17 738 2 |

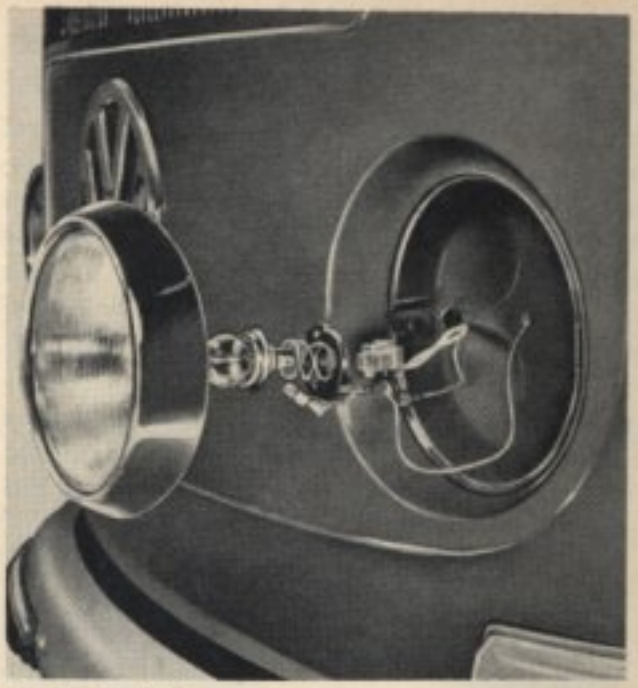
## Bulb replacement

### 1 - Headlight bulb

Remove screw in the middle of the headlight rim.

Take headlight unit out.

Pull connector off bulb base.



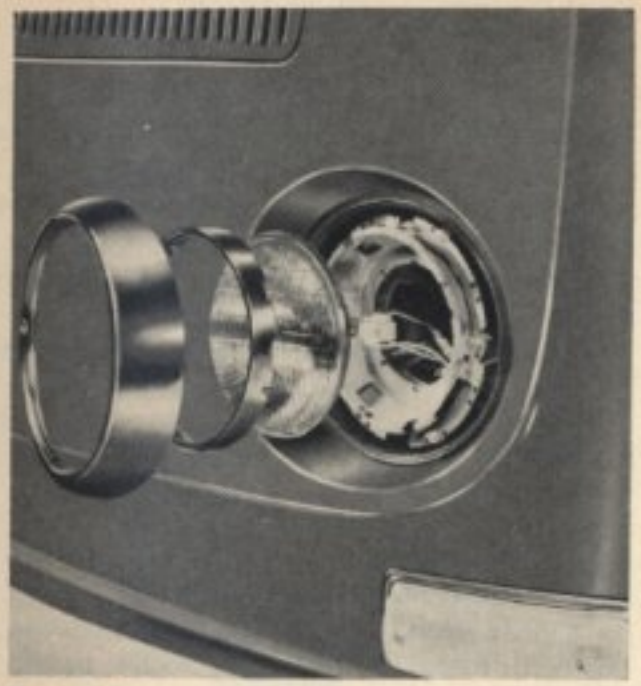
Headlight bulb

Turn cap to left, pull bulb out of reflector and fit new bulb.

When installing the new bulb, hold it with a clean cloth, a paper serviette or even with the cardboard bulb box but not with the bare hand. The lug on the bulb flange must engage in the notch provided in the reflector.

Fit the cap so that the contact strip is resting on the base of the parking light bulb.

Check the headlight setting.



Sealed-Beam unit

### 2 - Sealed-Beam unit

Remove screw in the middle of the trim ring and take the ring off.

Remove three screws in Sealed-Beam retaining ring and take ring off.

Take Sealed-Beam unit out of support ring and pull cable connector off.

When installing new Sealed-Beam units, ensure that the tree glass lugs engage properly in the support ring.

Check headlight settings.

### Front turn signal bulb

(with Sealed-Beam equipment: front turn signal/ parking light bulb)

Remove two screws.

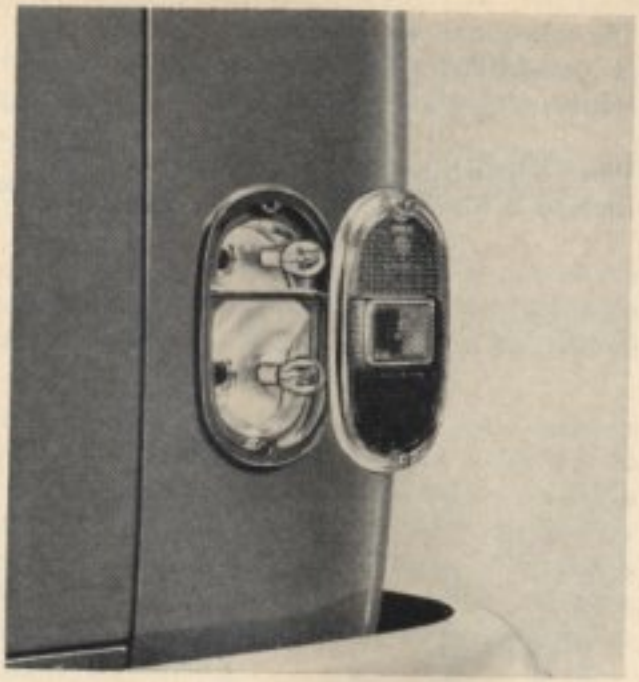
Take lens off.

Press bulb in lightly, turn and take out.

Insert new bulb.

When installing lens, ensure that gasket is located properly.

Do not overtighten the securing screws.



### Rear turn signal or stop/tail light bulbs

Remove two screws and take lens off.

Bulb positions:

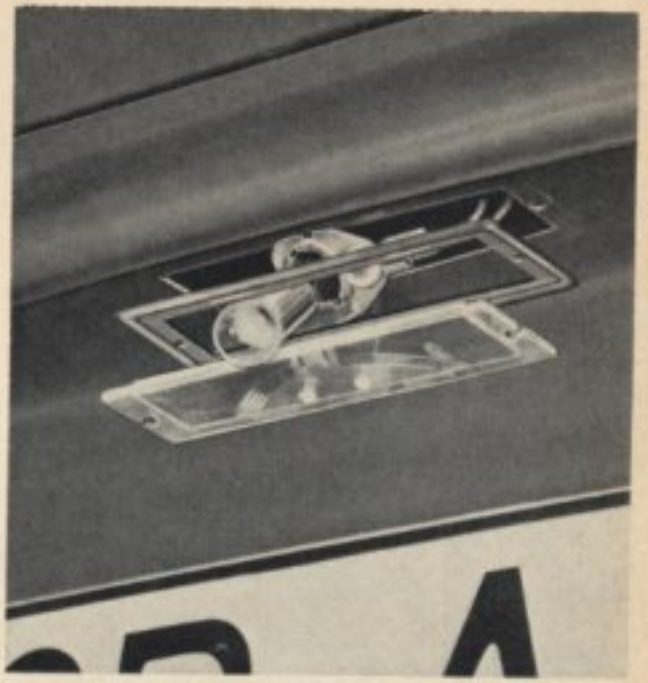
Top — turn signal
Bottom — stop/tail

Press bulb in lightly, turn and take out.

Insert new bulb.

When inserting the stop/tail light bulb, the retaining pin nearest to the bulb glass must be downwards.

Tighten lens securing screws evenly but do not overtighten.



### License plate light bulb

Remove two screws.

Take lens and bulb holder off.

Press bulb lightly into holder, turn and take out.

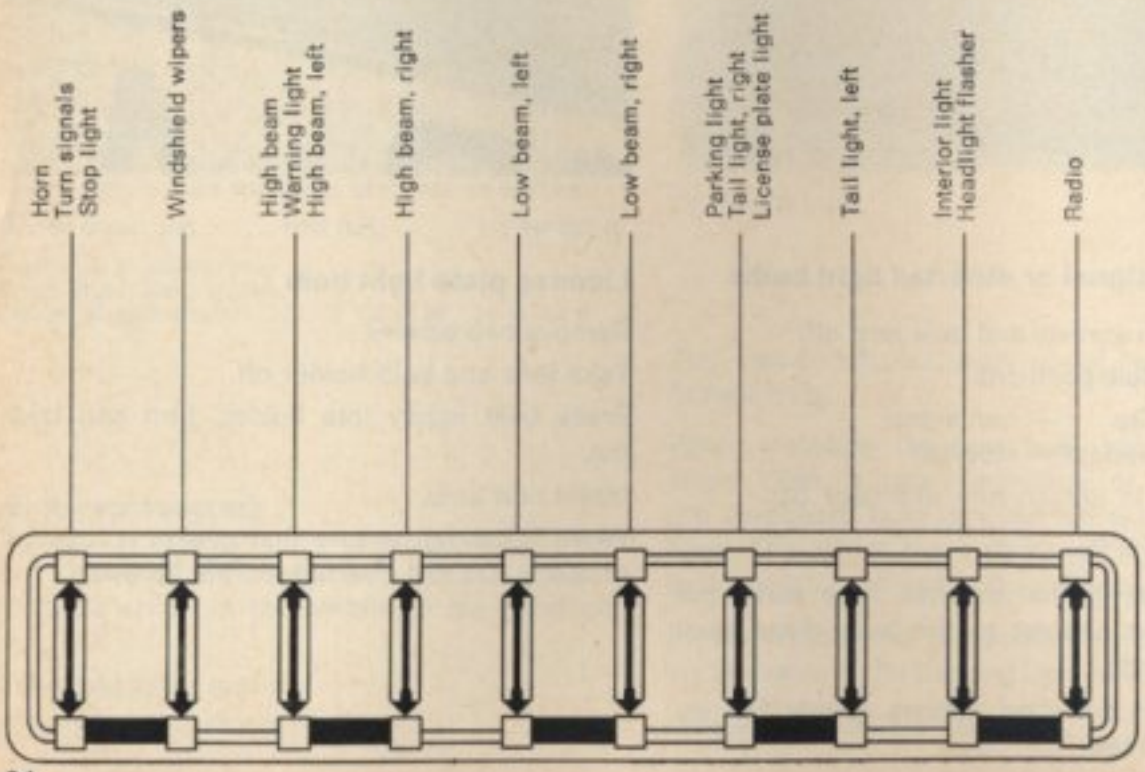
Insert new bulb.

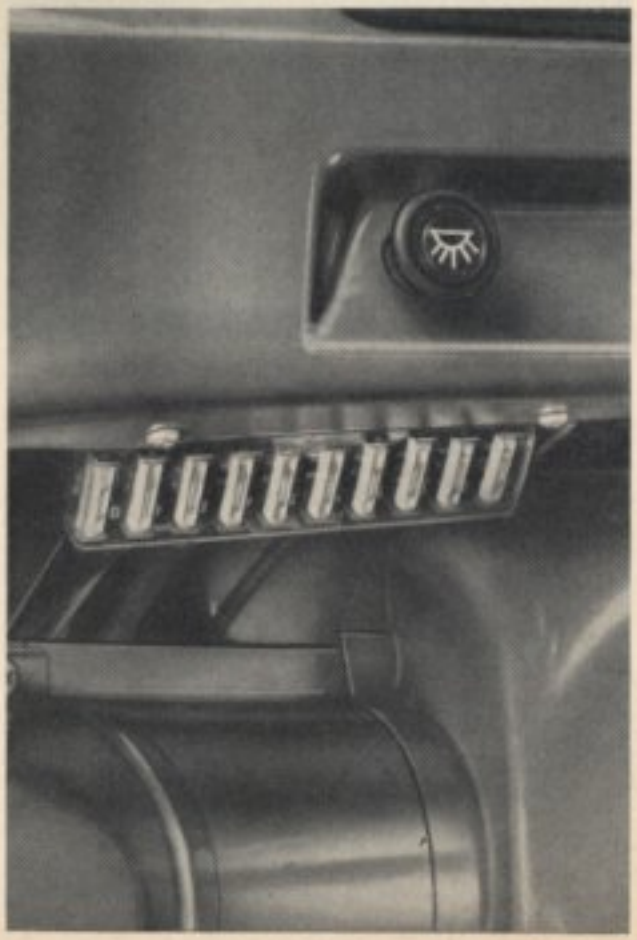
When installing, ensure that gasket is located properly. Do not overtighten the screws.

## Replacing fuses

The fuse box which has a transparent cover is located under the instrument panel on the left.

When a fuse blows it is not sufficient to merely replace it with a new fuse. The cause of the short circuit or overload must be established. On no account should fuses be patched up with tin foil or wire as this can cause serious damage elsewhere in the electrical system. It is advisable to always carry a few spare 8 ampere fuses on the vehicle.



## Checking battery

The ability of the engine to start readily depends to a great extent on the condition of the battery. For this reason the battery should be checked regularly and given a certain amount of attention.

The battery is fitted in the engine compartment on the right-hand side. It should be taken out for checking and maintenance purposes. To take it out, remove the oil bath air cleaner first. Please note the instructions on page 43.

To check the acid level, remove the plugs. The acid should always be just over the tops of the plates and up to the mark if there is one. Some batteries have a small plastic cup in the filler hole and others have a bar across the top of the plates. If the level is too low it must be topped up with distilled water.

The acid level drops when the battery is charged due to the dissociation of the water used to dilute the acid and, to a lesser extent, to evaporation. How often the battery has to be topped up depends mainly on operating conditions and indirectly on the time of year. When a vehicle is often driven long distances in the daytime with hardly any current being used, the battery will have to be topped up with distilled water much more often than in the case of a vehicle which is operating under different conditions. As a general rule, the battery acid level must be checked more often in the summer than in the winter. VW drivers in hot countries who do lot of driving are advised to check the battery at least every week.

Do not put in more water than is necessary because if the level is too high the acid will overflow when the battery is being charged and cause damage.

The terminals and connections should be kept clean and greased with battery terminal grease. Ensure that the ground connection to the body is free of corrosion and tight.

If you lay your vehicle up for a prolonged period, it is advisable to take the battery to a workshop. A battery which is not in constant use will discharge itself in time and this can cause permanent damage to the plates if the battery is not checked about every four weeks and charged as necessary.

**Important**

When working on the battery take care not to short-circuit the battery terminals as this causes the battery to heat up very quickly and it may burst. Furthermore, the sparks can ignite the gas generated during the charging process.

## Towing

A towing attachment is fitted at rear and front so that you can attach a towrope to your 'W Transporter easily.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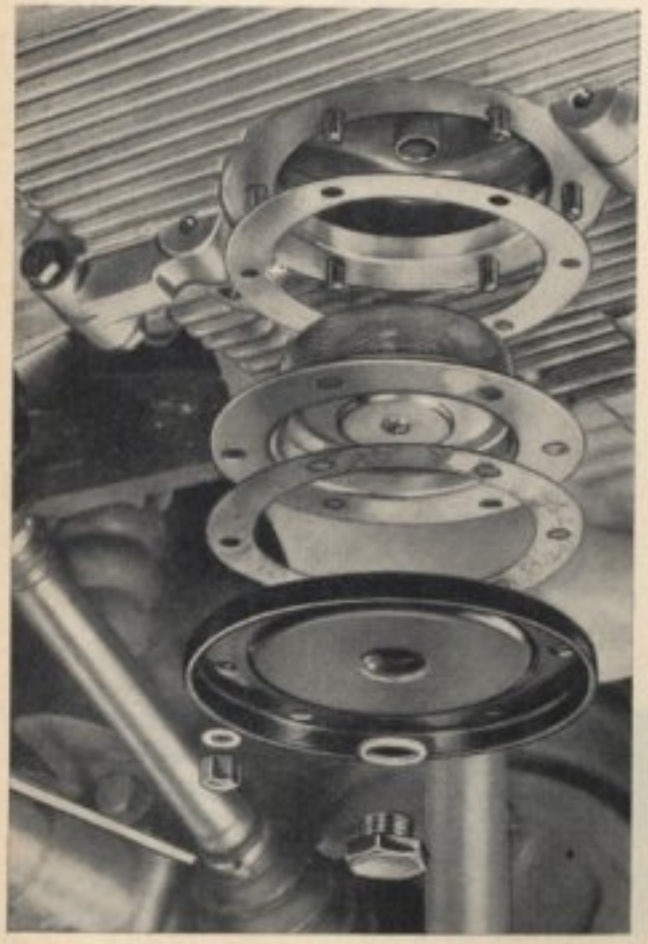
# Proper lubrication ...

means regular and careful lubrication. The lubrication chart on page 53 shows you at which intervals the various points require your attention.



## Engine

Regular oil changes are necessary even if the very best brand of HD oil is used because dirty oil in the engine means increased wear and reduces service life.

The oil is drained, when warm, by removing the plug in the oil strainer cover plate. Flushing is not necessary but the strainer must be removed and cleaned at every oil change. The gaskets and the copper washers under the cap nuts must always be renewed. The engine is then filled with 2.5 liters of HD oil (5.3 US pints/4.4 Imp. pints).

Due to the detergent properties of the HD oil, the fresh oil will look very dark after the vehicle has been running for only a short time. This need not worry you and under normal operating conditions there is no reason whatever to change the oil at shorter intervals than every 5000 km (3000 miles). We only recommend more frequent oil changes — every 2500 km (1500 miles) — in the winter if you drive mainly short distances and in city traffic.

If you only drive a few hundred miles a month under these conditions it is advisable to have the oil changed every 6 to 8 weeks.

In countries with arctic climates where average temperatures are about —25° C the oil should be changed every 1250 km (750 miles).

## Some more information about oil

Always use a good brand of gasoline engine HD oil for the engine of your Volkswagen. The quality of modern oils produced by reputable firms is so good that the choice of brand is left entirely to you. The VW engine makes no demands in respect of oil quality which cannot be fulfilled by every well known and popular brand. We advise you to select "your" oil at the first oil change at 1000 km and use the same brand whenever possible, because, from the lubrication point of view this is an advantage. On other hand you need not fear that your engine will be damaged in any way if sometimes you cannot avoid using another brand of oil for an oil change or to top up the level.

The classification of oil into various viscosity grades is shown by the designations SAE 30, SAE 20 W/20 and so on. The viscosity of a lubricant indicates its resistance to flow at a given temperature. The VW engine only requires two different viscosity grades which are used, according to season of year, as follows:

| | |
|---|---|
| SAE 30 | In warm seasons and all the year in countries with hot climates |
| SAE 20 W/20 | In the winter |
| or | |
| SAE 10 W* | In areas where the average temperature is below —15° C (5° F) |
| SAE 5 W* | In countries with arctic climates and temperatures below —25° C (—13° F) |

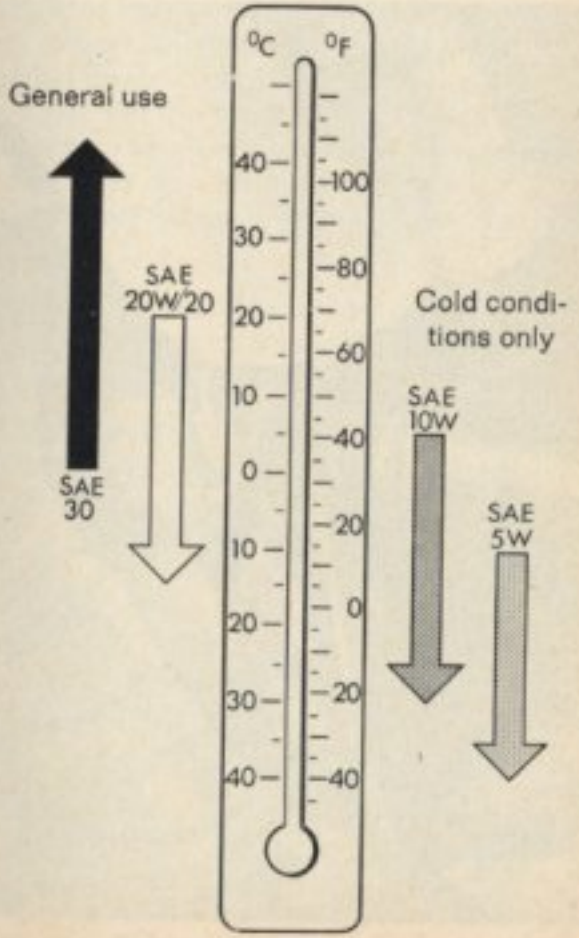
* Avoid driving at high speeds for long periods if using SAE 10 W oil and the outside temperature is above 0° C or if using SAE 5 W oil when the temperature is above —15° C.

All SAE grades cover a temperature range of about 35° C and the ranges of two neighbouring grades overlap by at least 20° C. Brief variations in temperature between seasons can therefore be disregarded. For the same reason it is also quite in order to mix oils of different viscosities when oil has to be added between oil changes and the viscosity of the oil in the engine no longer corresponds to the actual temperature.

In some countries, oils are classified according to the API system (American Petroleum Institute). Under this system HD oils suitable for the VW engine are designated "For Service MS".

No **additives** of any sort should be mixed with HD oil.

**Temperature ranges of SAE grades**

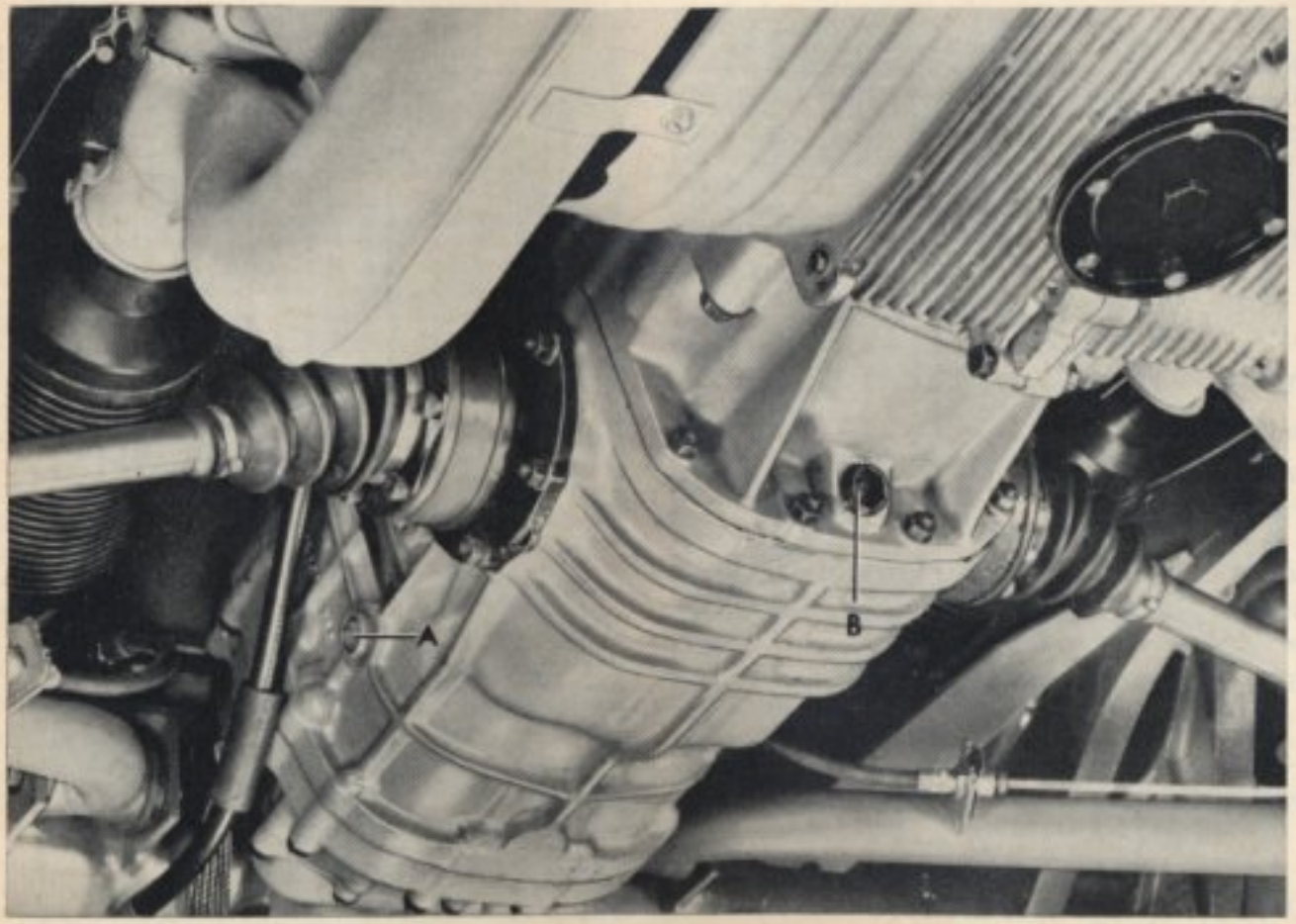


## Transmission

Transmission and differential are combined in one housing and both lubricated with the same **hypoid oil.** The oil should be up to the edge of the filler hole (A).

The magnetic drain plug (B) should be removed and the old oil drained off while it is still warm. Before the plug is put back it must be cleaned thoroughly. Then put in 3.5 liters of good quality SAE 90 hypoid oil. Only in countries with arctic climates should the thinner SAE 80 oil be used all the year.

The oil sometimes runs into the transmission housing very slowly. If one attempts to put the oil in too quickly it may overflow and give the impression that the housing is already full although actually only about 1—1.5 liters have been put in. It is essential to the service life and silent running of the transmission that the correct amount of oil is used.

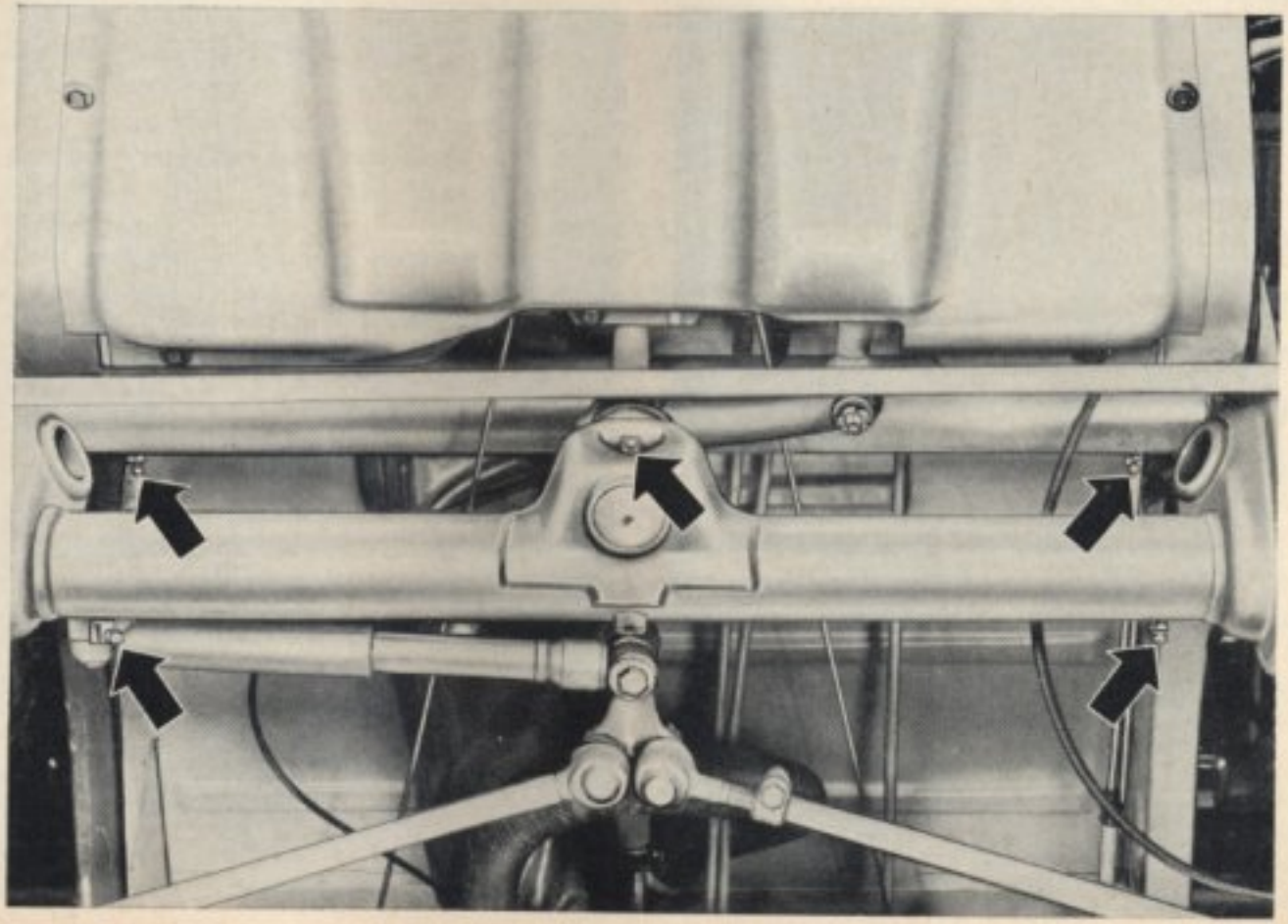



The oil level should be checked every 10 000 km (6000 miles). At the same time the transmission should be checked for leaks.

**Additives should not be put into hypoid oil.**

## Front axle

**The front axle can only be lubricated properly when the axle is free of load, that is with the front end lifted.**



The four nipples on the axle tubes and the one on the swing lever shaft should be lubricated with a lithium-based multi-purpose grease. The nipples and the nozzle of the grease gun must be cleaned carefully before greasing commences. Place gun on nipples and inject grease until fresh grease starts to come out of the bearings.

Grease and oil must not be left on tires and brake hoses for long periods. Even small traces should be wiped off immediately.

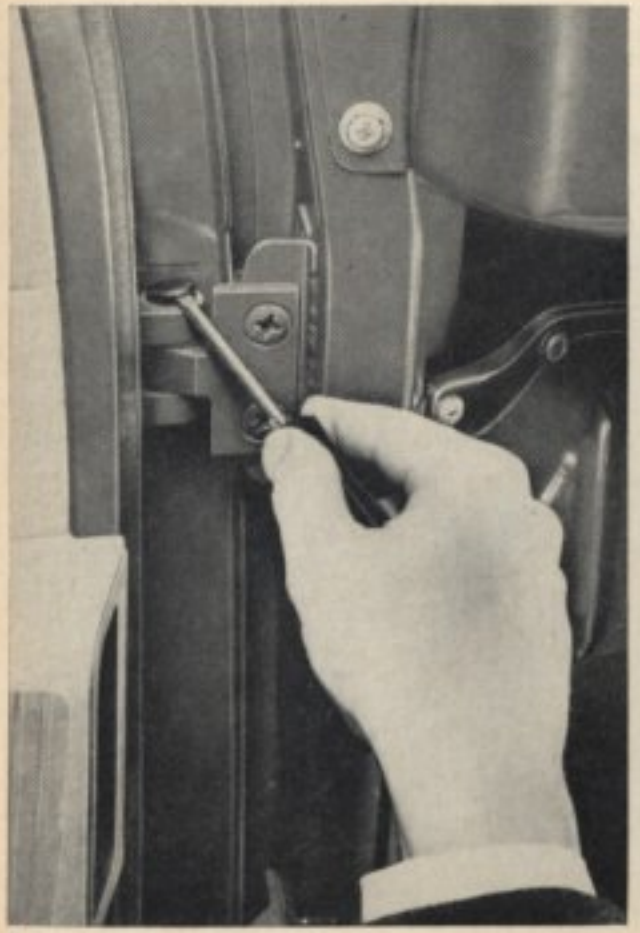
If the vehicle is driven less than 10 000 km (6000 miles) in a year, have the front axle lubricated once a year.

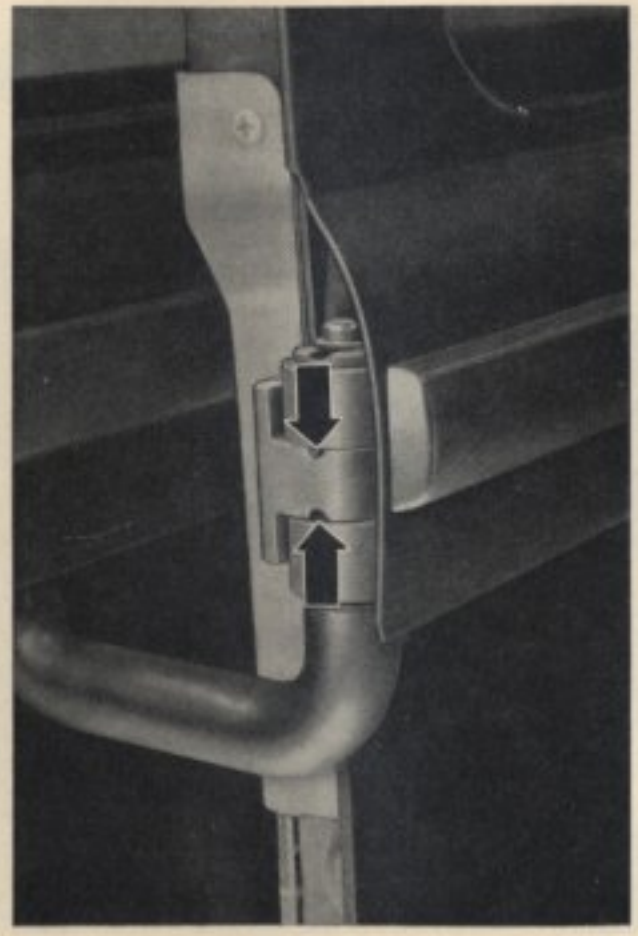
## Doors and hoods

Above the hinge pins in the cab door hinges are small oil chambers which are sealed with plastic plugs. At least every 3 months the oil level should be checked after levering out the plugs with a small screwdriver. The chamber should then be filled with SAE 30 engine oil. Any oil which overflows should be caught with a cloth, the plug pressed back in again and the hinge wiped carefully.

At the same intervals, the joint of the sliding door hinge — arrow —, the pivot points of the rear flap hinges and the hinges and lock of the engine compartment lid should be lubricated with a few drops of oil. The door lock striker plates and the support springs of the engine compartment lid should be lubricated with petroleum jelly as and when necessary. Excess lubricant should be wiped off at all these points.

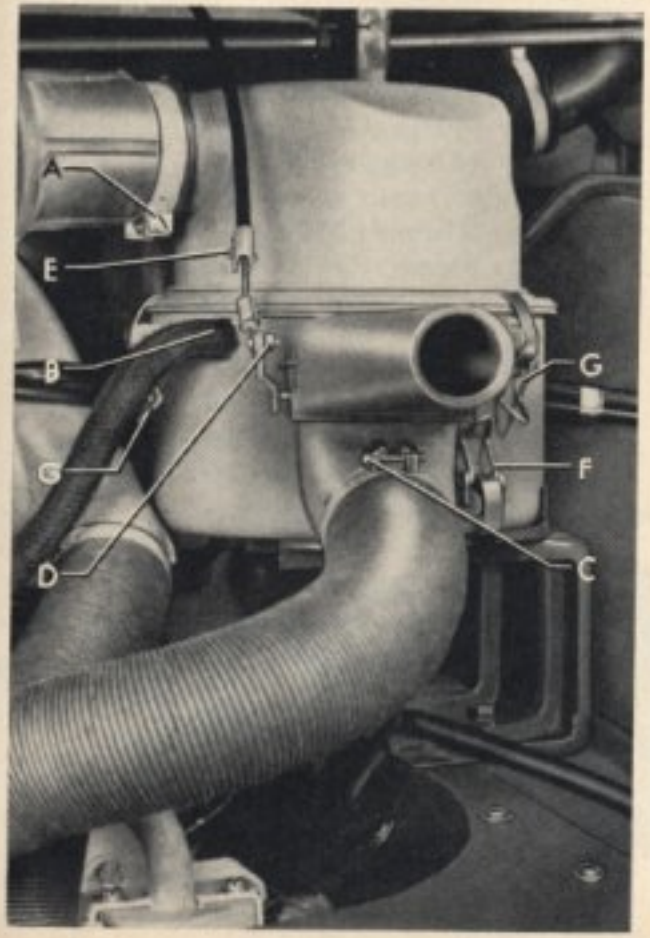
The lock cylinders should be treated with graphite by dipping the key in the graphite powder and turning it to and fro in the lock.





## Air cleaner

A dirty cleaner element not only reduces the engine output, it can also cause premature engine wear. If local conditions are such that the vehicle is often driven on very dusty roads, the cleaner must be checked frequently, even daily if necessary.




All the dust present in the air drawn in by the engine is retained by the filter element in the upper part of the air cleaner and washed out when the vehicle is in motion by the oil in the lower part. In time, this causes a layer of sludge to form at the bottom of the lower part. When there is only 4—5 mm of oil above the sludge layer, the lower part must be cleaned and filled with fresh oil. The cleaner must be removed to do this:

Loosen clip — A — on intake elbow and take elbow off.

Pull crankcase ventilation hose — B — off.

Loosen clip — C — on hose for preheated intake air and pull hose off.

Hold screw — D — for warm air control flap cable with a pair of pliers and loosen hexagon nut.

Loosen screw — E — on outer cable retainer and pull cable out.

Release clips — F — securing cleaner to bracket and take cleaner off.

Loosen the three upper clips — G —, take cleaner upper part off and put it down with the filter element downwards.

Clean bottom part carefully and fill to the mark with fresh engine oil (approx. 0.45 liter). Use SAE 30 all the year except in countries with arctic climates where SAE 10 W oil should be used. The top part does not normally need cleaning. If the filter element has become so dirty due to delayed cleaning of the bottom part or oil shortage that the air inlet holes on the underside are partly blocked, the encrusted dirt should be scraped off with a piece of wood.

After assembling the cleaner, secure it to the bracket in the engine compartment with the two clips. Before connecting the cable for the warm air control flap, check that the flap moves freely. Then push the outer cable into retainer and inner cable into clamp screw as far as they will go and secure. Tighten intake elbow clip carefully.

# Technical Data

## Engine

Four cylinder, four stroke, horizontally opposed in rear
Air cooling by fan, thermostat controlled
Pressure oil feed with gear-type pump
Oil cooler
Mechanical fuel pump
Downdraft carburetor with automatic choke and accelerator pump
Oil bath air cleaner with thermostatically controlled pre-heating connection

| | |
|---|---|
| Bore | 85.5 mm (3.36 in.) |
| Stroke | 69 mm (2.72 in.) |
| Capacity | 1584 cc (96.6 cu. in.) |
| Compression ratio | 7.7 : 1 |
| Maximum output DIN | 47 bhp at 4000 rpm |
| Maximum output SAE | 57 bhp at 4400 rpm |
| Maximum torque DIN | 10.6 mkg at 2200 rpm |
| Maximum torque SAE | 81.7 ft. lb. at 3000 rpm |
| Valve clearance with engine cold | 0.10 mm (.004 in.) |
| Fuel consumption[1]) | approx. 10.4 liters per 100 km<br>22.6 miles per US gallon<br>29 miles per Imp. gallon |
| Fuel rating | 91 Octane (Res. F 1) |
| Oil consumption | 0.5—1.4 per 1000 km<br>1.7—4.8 US pints per 1000 miles<br>1.4—4.0 Imp. pints per 1000 miles |

[1]) Measured consumption plus 10 %, with half load at a steady ¾ of maximum speed on level road.

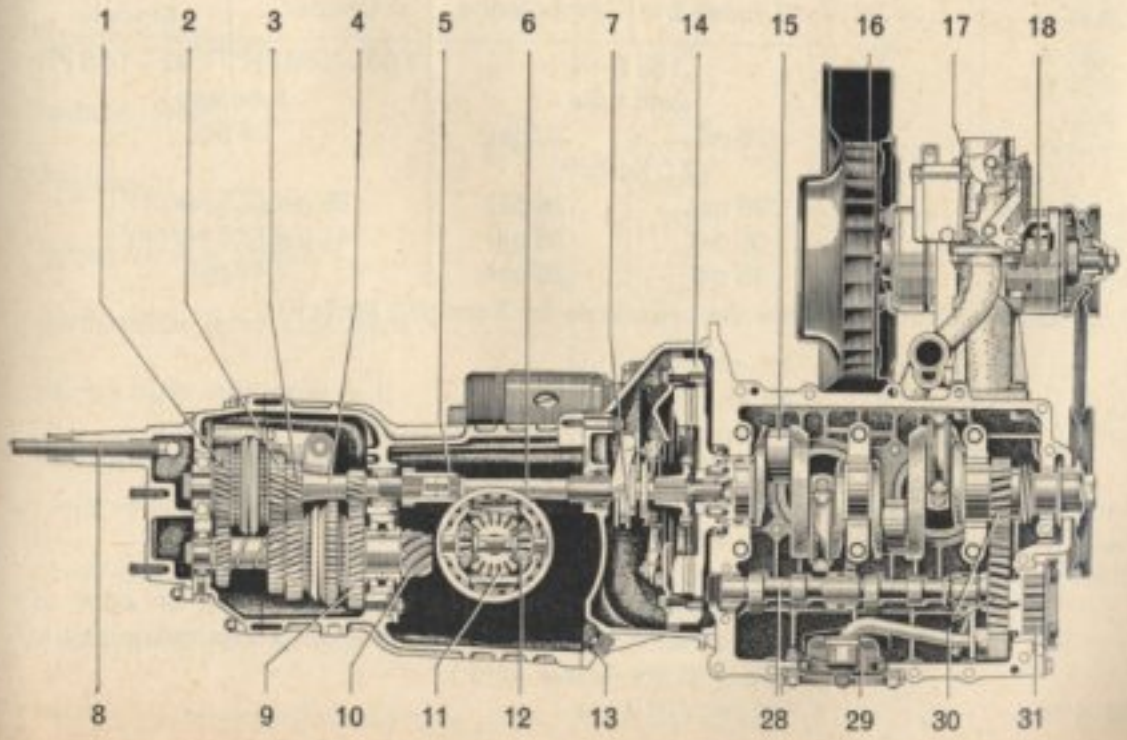
## Capacities

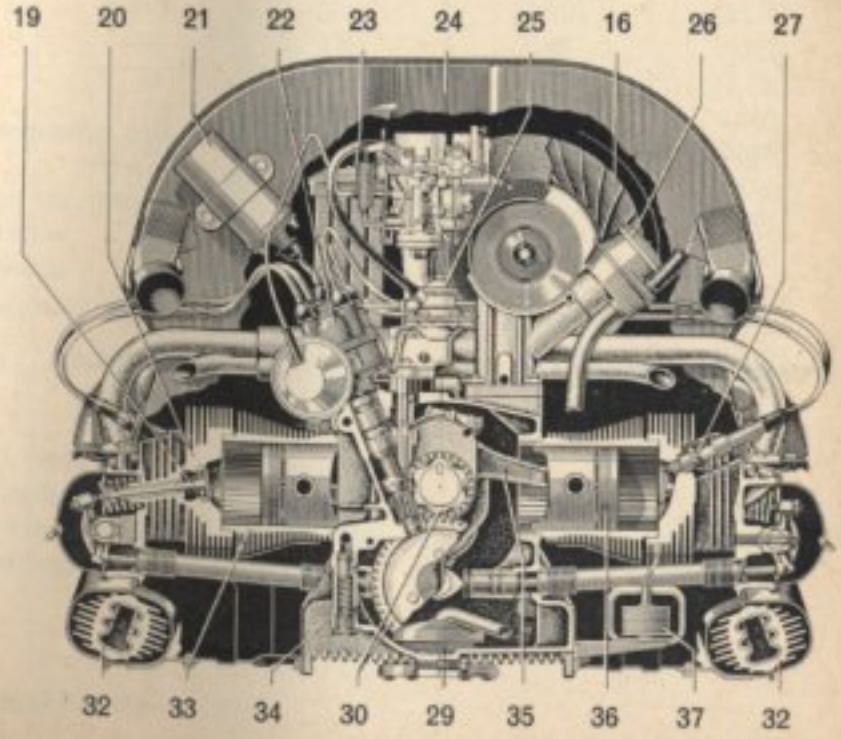
| | |
|---|---|
| Fuel tank | 60 liters (16 US gallons; 13 Imp. gallons) |
| Engine | 2.5 liters (5.3 US pints; 4.4 Imp. pints) |
| Gearbox and differential | 3.5 liters (7.4 US pints; 6.1 Imp. pints) |
| Brake system | 0.30 liter |
| Oil bath air cleaner | 0.45 liter (1.0 US pint; .8 Imp. pint) |
| Windshield washer | 1.5 liter (3 US pints; 2.4 Imp. pints) |

## Performance

| | | |
|---|---|---|
| Maximum and cruising speed | 105 kph (65 mph) | |
| Pick-up with cover, Pick-up with large platform | 95 kph (60 mph) | |
| Climbing ability | 1st gear 27 % | 3rd gear 7 % |
| | 2nd gear 14 % | 4th gear 4 % |

1 - 4th gear
2 - 3rd gear
3 - 2nd gear
4 - Drive shaft, front
5 - Reverse gear
6 - Drive shaft, rear
7 - Clutch release bearing
8 - Transmission shift lever
9 - 1st gear
10 - Drive pinion
11 - Differential side gear
12 - Differential pinion
13 - Oil drain plug
14 - Flywheel
15 - Crankshaft
16 - Fan
17 - Carburetor
18 - Generator
19 - Valve
20 - Cylinder head
21 - Ignition coil
22 - Distributor
23 - Oil cooler
24 - Fan housing
25 - Fuel pump
26 - Oil filler and breather
27 - Spark plug
28 - Camshaft
29 - Oil strainer
30 - Camshaft drive gear
31 - Oil pump
32 - Heat exchanger
33 - Cylinder
34 - Oil pressure relief valve
35 - Connecting rod
36 - Piston
37 - Thermostat



## Chassis

Unitary body, frame plates reinforced with side and cross members, front axle bolted to frame side members, engine/transmission assembly fitted on three bonded rubber mountings.
Independent suspension: twin, cranked trailing arms with ball joints at front, double-joint axle with three-point trailing links at rear, torsion bar springing. Double-acting, telescopic shock absorbers, stabilizer at front.
Ross type steering gear with maintenance-free tie-rods and hydraulic steering damper.
Hydraulic dual circuit four-wheel foot brakes, mechanical hand brake effective on rear wheels.

| | |
|---|---|
| Wheelbase | 2400 mm (94.5 in.) |
| Turning circle diameter | approx. 12.3 m (40 ft.) |
| Track at front | 1385 mm (54.5 in.) |
| Toe-out | 0—2 mm (.0—.08 in.) with wheels pressed together at rear |
| Camber | 0° 40′ ± 15′ |
| Track at rear | 1426 mm (56.1 in.) |
| Wheels | 5 JK x 14 (Wheel discs with drop center rims) |

| Tires | Clipper L | Ambulance | Clipper | all other Models |
|---|---|---|---|---|
| | 185 R 14 with tube | | 7.00—14 6 PR tubeless | 7.00—14 8 PR tubeless |
| Tire pressures: | 28 psi | 28 psi | 28 psi | |
| front | (2.0 kg/cm²) | | | |
| rear: up to ¾ payload | 28 psi | 28 psi | 35 psi (2.5 kg/cm²) | |
| with full load | 35 psi | 28 psi | 41 psi (2.9 kg/cm²) | |
| spare wheel | 35 psi | 28 psi | 41 psi | |

For prolonged high-speed driving, increase the pressures by 3 psi (0.2 kg/cm²).

## Electrical system

| | |
|---|---|
| Voltage | 12 volts |
| Battery | 44 Ah |
| Starter | 0.7 hp |
| Generator | max. 30 Ampere, early cut-in |
| Ignition distributor | with vacuum spark advance |
| Firing order | 1 — 4 — 3 — 2 |
| Basic ignition timing | TDC (Rotor arm pointing to No. 1 cylinder mark on edge of distributor housing and left mark on crankshaft pulley in line with crankcase joint.) |
| Contact breaker gap | 0.4 mm (.016 in.) |

## Electrical system

| | | |
|---|---|---|
| Spark plugs | Bosch W 145 T 1<br>Beru 145/14<br>Champion L 95 y | or plugs with similar values from other manufacturers. |
| Plug thread | 14 mm | |
| Plug gap | 0.7 mm (.028 in.) or, in very cold conditions 0.4—0.5 mm (.016—.020 in.) | |

| Dimensions and weights | Clipper L | Clipper | Kombi | Delivery Van | High-roofed Delivery Van | Pick-up without cover | Pick-up with cover |
|---|---|---|---|---|---|---|---|
| Length ..... mm | 4445 | 4420 | 4420 | 4420 | 4420 | 4420 | 4420 |
| (in) | (175.0) | (172.0) | (172.0) | (172.0) | (172.0) | (172.0) | (172.0) |
| Width ..... | 1815 | 1765 | 1765 | 1765 | 1765 | 1765 | 1765 |
| | (71.5) | (69.5) | (69.5) | (69.5) | (69.5) | (69.5) | (69.5) |
| Height, unladen ..... | 1940 | 1940 | 1950 | 1955 | 2290 | 1955 | 2245 |
| | (76.4) | (76.4) | (76.8) | (77.0) | (90.2) | (77.0) | (88.4) |
| Ground clearance ..... | 185 | 185 | 185 | 185 | 185 | 185 | 185 |
| | (7.25) | (7.25) | (7.25) | (7.25) | (7.25) | (7.25) | (7.25) |
| Unladen weight ..... kg | 1260 | 1235 | 1265 | 1175 | 1250 | 1175 | 1210 |
| (lbs) | (2777) | (2722) | (2788) | (2590) | (2755) | (2590) | (2666) |
| Payload ..... | 865 | 890 | 910 | 1000 | 925 | 1000 | 965 |
| | (1906) | (1962) | (2006) | (2204) | (2039) | (2204) | (2127) |
| Gross vehicle weight ..... | 2125 | 2125 | 2175 | 2175 | 2175 | 2175 | 2175 |
| | (4684) | (4684) | (4794) | (4794) | (4794) | (4794) | (4794) |
| Permissible front axle load ..... | 975 | 975 | 975 | 975 | 975 | 975 | 975 |
| | (2149) | (2149) | (2149) | (2149) | (2149) | (2149) | (2149) |
| Permissible rear axle load ..... | 1150 | 1150 | 1200 | 1200 | 1200 | 1200 | 1200 |
| | (2534) | (2534) | (2645) | (2645) | (2645) | (2645) | (2645) |
| Permissible trailer weights[1]: | | | | | | | |
| with brakes ..... | 800 | 800 | 800 | 800 | 800 | 800 | 800 |
| | (1760) | (1760) | (1760) | (1760) | (1760) | (1760) | (1760) |
| without brakes ..... | 500 | 500 | 500 | 500 | 500 | 500 | 500 |
| | (1100) | (1100) | (1100) | (1100) | (1100) | (1100) | (1100) |
| Permissible load on roof[2] ..... | 100 | 100 | 100 | 100 | — | — | — |
| | (220) | (220) | (220) | (220) | | | |

[1]) Subject to local regulations which may differ. [2]) Use only roof racks supported in rain channel and distribute load uniformly.

## Dimensions and weights

| | Double Cab Pick-up | | Pick-up with large platform | Fire Truck | Ambulance |
|---|---|---|---|---|---|
| | without cover | with cover | | | |
| Length ..... mm | 4420 | 4420 | 4470 | 4420 | 4420 |
| (in.) | (172.0) | (172.0) | (176.0) | (172.0) | (172.0) |
| Width ..... | 1765 | 1765 | 1980 | 1765 | 1765 |
| | (69.5) | (69.5) | (78.0) | (69.5) | (69.5) |
| Height, unladen ..... | 1950 | 2220 | 1955 | 2185[1]) | 2175[1]) |
| | (76.8) | (87.4) | (77.0) | (86.0) | (85.6) |
| Ground clearance ..... | 185 | 185 | 185 | 185 | 185 |
| | (7.25) | (7.25) | (7.25) | (7.25) | (7.25) |
| Unladen weight ..... kg | 1225 | 1250 | 1255 | 1305 | 1320 |
| (lbs) | (2699) | (2755) | (2766) | (2877) | (2907) |
| Payload ..... | 950 | 925 | 920 | 950 | — |
| | (2094) | (2039) | (2028) | (2094) | — |
| Gross vehicle weight ..... | 2175 | 2175 | 2175 | 2255 | 1900 |
| | (4794) | (4794) | (4794) | (4971) | (4188) |
| Permissible front axle load ..... | 975 | 975 | 975 | 985 | 950 |
| | (2149) | (2149) | (2149) | (2171) | (2094) |
| Permissible rear axle load ..... | 1200 | 1200 | 1200 | 1270 | 1000 |
| | (2645) | (2645) | (2645) | (2799) | (2204) |
| Permissible trailer weights[2]): | | | | | |
| with brakes ..... | 800 | 800 | 800 | 800 | 800 |
| | (1760) | (1760) | (1760) | (1760) | (1760) |
| without brakes ..... | 500 | 500 | 500 | 500 | 500 |
| | (1100) | (1100) | (1100) | (1100) | (1100) |
| Permissible load on roof[3]) ..... | 75 | 75 | — | — | — |
| | (165) | (165) | | | |

[1]) With emergency light. [2]) Subject to local regulations which may differ.
[3]) Use only roof racks supported in rain channel and distribute load uniformly.

## Power transmission

Clutch pedal free play: 10—20— mm (.4—.8 in.) • Single plate, dry clutch • Baulk synchronized four-speed gearbox and bevel gear differential in one housing • Gear ratios: 1st gear 3.80:1, 2nd gear 2.06:1, 3rd gear 1.26:1, 4th gear 0.82:1, reverse gear 3.61:1 • Differential ratio: 5.375:1 • Double-joint rear axle.

# In the vehicle documents . . .

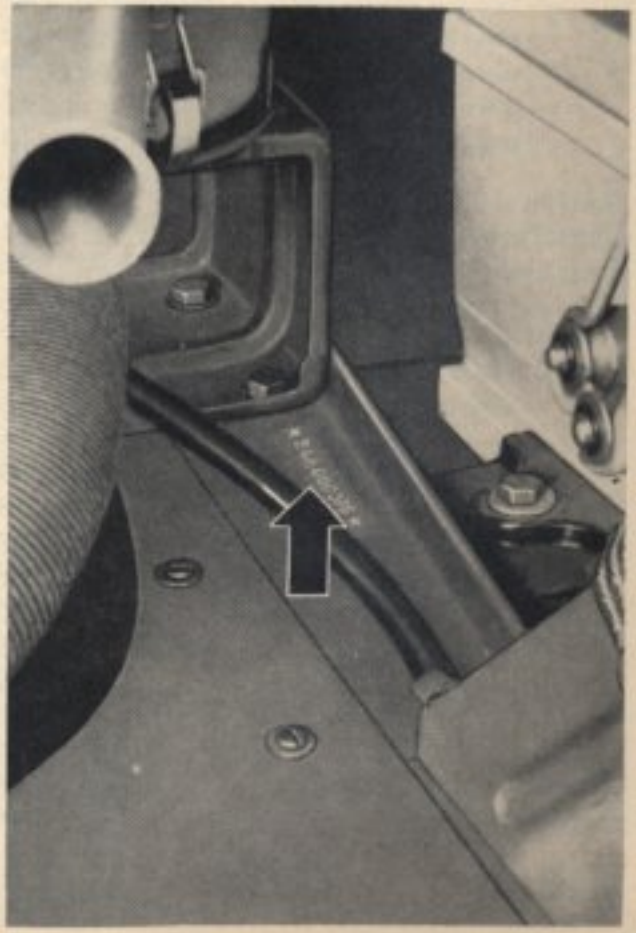
are, amongst other things, the model designation and the chassis and engine numbers. The police or Traffic Department attach much importance to these details.

### The Identification Plate

is on the right-hand side of the cab rear panel.

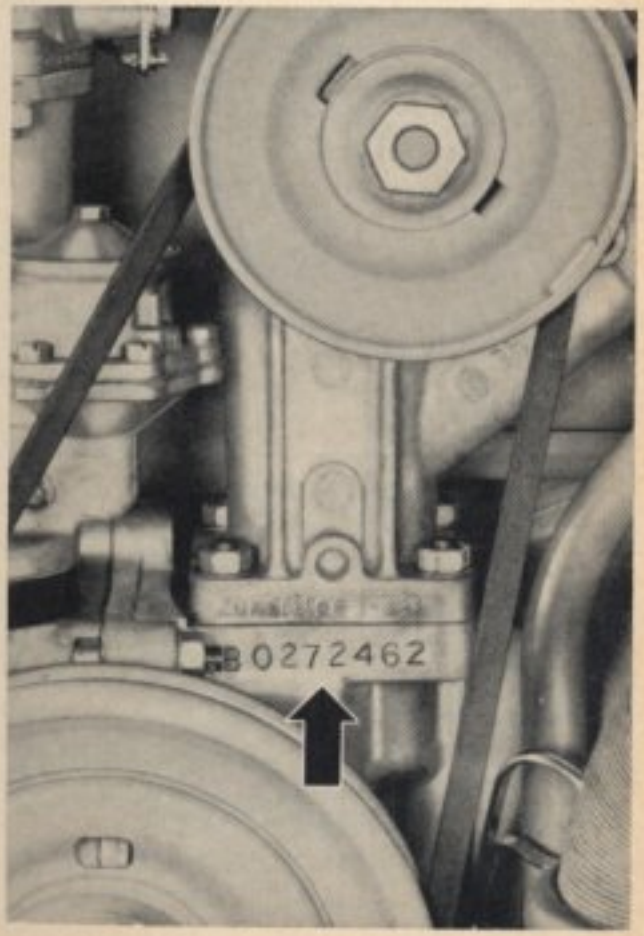
### The Chassis Number

is stamped in the right-hand side of the engine cover plate.



### The Engine Number

is on the generator support flange.



# Index

# The lubrication and maintenance charts . . .

list all the operations which we specify for the lubrication and maintenance services. Having this work carried out regularly by an authorized VW Dealer is an essential part of the instructions regarding the operation of your Volkswagen. Please see paragraph 6 of our Warranty conditions in this connection.

Every VW Dealer is interested in keeping your Volkswagen reliable and roadworthy so please have the 3000 mile lubrication services carried out regularly by your VW specialist. If you drive mainly in city traffic or short distances only it is advisable to ask him to check the brake adjustment at the same time.

**Lubrication chart**

| Operation | W 1<br>at 800—1200 km<br>(500—750 miles) | WS 5<br>At 5000,<br>15 000 km<br>(3000, 9000 miles)<br>and so on | W 10<br>At 10 000,<br>20 000 km<br>(6000,<br>12 000 miles)<br>and so on |
|---|---|---|---|
| Engine: Change oil, clean strainer, check for leaks | × | × | × |
| Transmission: Change oil, clean magnetic drain plug, check for leaks | × | | W 10<br>Only at 50 000,<br>100 000 km<br>(30 000, 60 000<br>miles)<br>and so on |
| Transmission: Check oil level, top-up as necessary, check for leaks | | | × |
| Front axle: Lubricate | | | × |
| Door and hood locks, door hinges and joint of the sliding door hinge: Lubricate | | × | × |
| Carburetor linkage: Lubricate | | | × |
| Air cleaner: Check, clean lower part if necessary and put fresh oil in | | | × |
| Battery: Check voltage and acid level, add distilled water if necessary, clean and grease terminals | | × | × |
| Windshield washer: Fill | × | × | × |

**Important**

If your Transporter is driven less than 10 000 km (6000 miles) a year, have the front axle greased once a year.

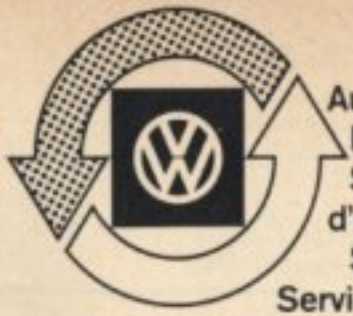
The door and hood locks, the door hinges and the joint of the sliding door hinge should be lubricated at least every 3 months.

## Maintenance Chart

| Operation | W 1 at 800—1200 km (500—750 miles) | W 10 at 10,000, 20,000 km (6,000, 12,000 miles) and so on |
|---|---|---|
| Rear wheel shafts: Check security of nuts and tighten if necessary. | × | |
| Fan belt: Check, tighten or replace if necessary. | × | × |
| Fuel pump: Clean filter. | × | × |
| Ignition distributor: Lubricate, check contact points, replace if necessary, adjust contact breaker gap and ignition timing. | × | × |
| Engine: Adjust valve clearance and fit new cylinder head cover gaskets. | × | × |
| Spark plugs: Clean, check and adjust gaps, check compression. | | × |
| Carburetor pre-heating: Check control flap. | | × |
| Crankcase ventilation: Check rubber valve and replace if necessary. | | × |
| Exhaust system: Check for damage. | | × |
| Clutch: Adjust pedal free play. | × | × |
| Rear axle: Check axle joint socket head screws for security and tighten if necessary. | | × |
| Drive shafts: Check dust seals for damage and leaks. | × | × |
| Tie-rods: Check security, tighten if necessary, check dust seals. | × | × |

## Maintenance chart

| Operation | W 1<br>at 800—1200 km<br>(500—750 miles) | W 10<br>at<br>10,000, 20,000 km<br>(6,000, 12,000 miles)<br>and so on |
|---|---|---|
| Steering ball joints: Check dust seals and tightness of plastic plugs. | × | × |
| Front wheels: Check camber and track. | × | × |
| Steering gear: Check and adjust play between peg and worm. | | × |
| Wheels: Check mounting bolts for tightness, tighten if necessary, correct tire pressures. | × | |
| Tires: Check for wear and damage, correct pressures. | | × |
| Brake system: Check lines, hoses and connections for leakage and damage. Check fluid level and top-up if necessary, adjust foot and handbrakes. | × | × |
| Warning device for brake system: check operation of switch and lamp. | | × |
| Brake linings: Check thickness. | | × |
| Electrical system: Check operation, adjust headlamps. | × | × |
| Wiper blades: Check and replace if necessary. | | × |
| Front wheel bearings: Clean, pack with grease and adjust (includes removing and installing both brake drums). | | W 50<br>Only at 50,000,<br>and 100,000 km<br>(30,000 and<br>60,000 miles) |
| Road test: Check efficiency of foot and handbrakes, check and adjust heating and idling. Check fresh air ventilation. | × | × |

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