

# Instruction Manual



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# Instruction Manual and Service Card

VOLKSWAGEN TRANSPORTER

August 1966

V O L K S W A G E N W E R K   A G   .   W O L F S B U R G

# Instruction Manual and 300 Test Questions

VOLKSWAGEN

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All pictures are of the VW Delivery Van and the text is based on this vehicle. Where the controls and equipment of the passenger carrying models differ considerably, attention is drawn to the difference. The section on technical data however, contains the most important detail for all models. All 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.

**Only one key** is required to open the door and rear flap and start the engine. It is a good idea to note the number of the key on a slip of paper which is then put with the vehicle documents. If you should lose the key, you can always obtain a replacement from your VW Dealer.



## Sit down and make yourself comfortable . . .

When driving, you must be comfortable. That is why the seat position and backrest rake of the driver's seat in your Volkswagen Transporter can be altered to suit your requirements.

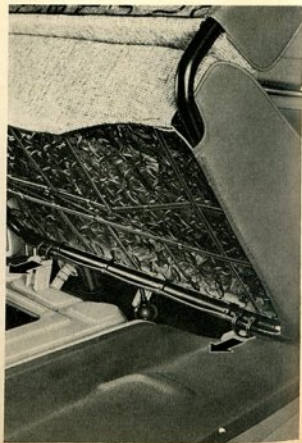
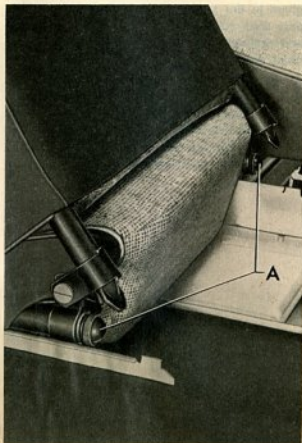
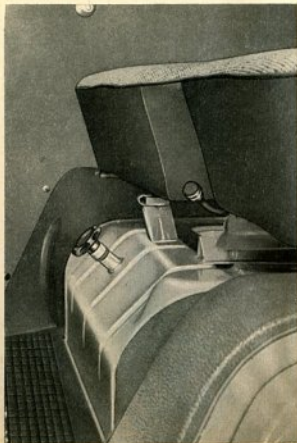
This is quite simple to do — just lift the

lever at the front right-hand side of the seat frame and slide the seat forward or backward. When the seat has been moved, always ensure that the lever engages properly so that the seat cannot move of its own accord while you are driving.

The backrest rake can be altered by turning the two adjusting screws (A).

The other seat in the cab can be tilted forward and taken out easily.

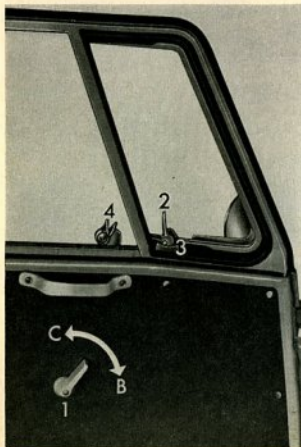
A - Adjusting screws



## Before closing the door...

it is advisable to open a window slightly. The door will then be easier to close because the air can escape from inside the body. Both cab doors can be locked from inside by pressing the locking levers forward (B). To

open the doors just pull the levers to the rear (C). When leaving the vehicle, lock one door from inside first then lock the other one from outside. Both doors have lock cylinders so you can get in and out from either side.



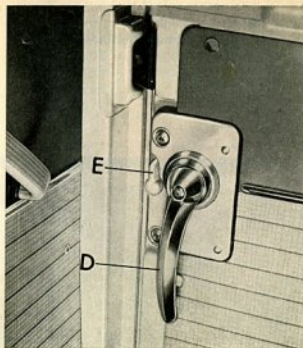
- 1 - Locking lever
- 2 - Vent wing fastener
- 3 - Vent wing locking button
- 4 - Sliding window fastener

### Sliding door

If your Transporter has a sliding side door instead of the wing doors, note the following points:

To open the door, press the handle down. The door then slides back and is held in the open position by a hook.

To close the door, press the handle down and slide the door forward firmly until it engages. Then pull the handle up so that the rear edge



of the door makes contact with the body. When the vehicle is in motion, the door must always be closed.

The door can be locked with the key from outside.

The door is opened and closed in the same way from inside the body. To get out, just press the handle (D) forward. The door can be locked when the vehicle is moving by pressing the small locking catch (E) forward.

## In front of you - the instrument panel...

Even if it is not your first Volkswagen Transporter just have a quick look at the dash and try out the various knob and levers with the ignition switched on:

### 1 - Speedometer

The following warning lamps are in the speedometer dial:

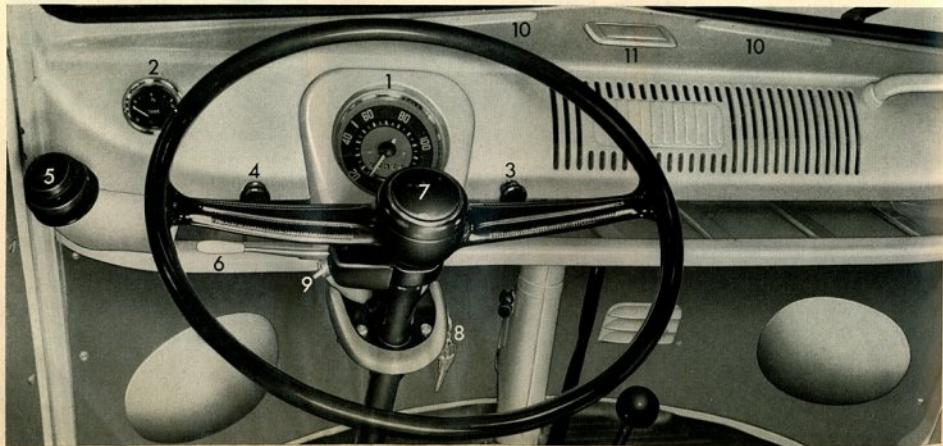
green	— oil pressure
red	— generator and cooling
blue	— headlamp high beam
green arrows	— turn signals

### 2 - Fuel gauge

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

### 3 - Lighting switch

Pull the knob out to the first stop to switch on the parking, license plate and tail lights.



Pulling the knob out to the next stop, switches the headlamps on as well. The headlamp beams are switched up and down by lifting the turn signal lever. A blue warning lamp in the speedometer dial lights up when the beams are on high.

The instrument lights are switched on and the brightness controlled by turning the lighting switch (3).

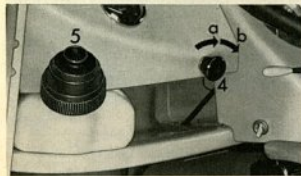
#### 4 - Windshield wipers

The wipers are switched on by turning the switch which has two positions for different wiper speeds:

a = slow

b = fast

The blades park automatically when switched off.



#### 5 - Windshield washer system

When the rubber bellows on the water container is pressed, water is sprayed onto the windshield. To put water in the container, screw the plastic ring off the container and

lift the bellows which forms the pump. The container capacity is 0.8 liter.

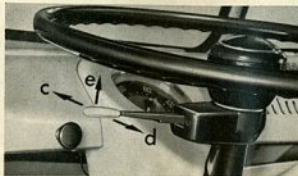
It is advisable to add a cleaning solution to the water to ensure that the windshield is cleaned quickly and properly. If enough of this cleaning agent is put in it also acts as an anti-freeze solution in the winter. Further details are given on page 25.

Methylated spirits can also be used as an anti-freeze agent. In this case a mixture of 1 part meths to 3 parts water will protect the water from freezing down to about  $-12^{\circ}\text{C}$  ( $10^{\circ}\text{F}$ ).

#### 6 - Turn signal switch

Lever forward — c — right turn signal

Lever to rear — d — left turn signal



The turn signals are cancelled automatically after taking the corner.

The switch lever is also used to switch the headlamp beams up and down and to flash the headlamps in the daytime.

#### 7 - Horn

#### 8 - Steering/ignition lock

1 - Ignition off — steering locked

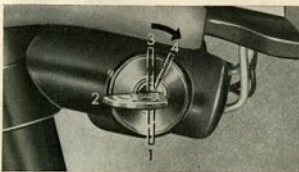
2 - Ignition off — steering free

3 - Ignition on

4 - Starting

#### Important

Remove key from lock only when vehicle is stationary.



#### 9 - Interior light switch

The light in the load or passenger compartment is switched on with the switch on the left of the speedometer housing.

#### 10 - Defroster vents

#### 11 - Ashtrays

To remove the ashtray in the dash board, just press it up from below.

The ashtrays in the passenger compartment of the Micro Bus models can be removed by sliding them upwards out of the retaining frame.

## Above the windshield ...

### 12 - Sun visors

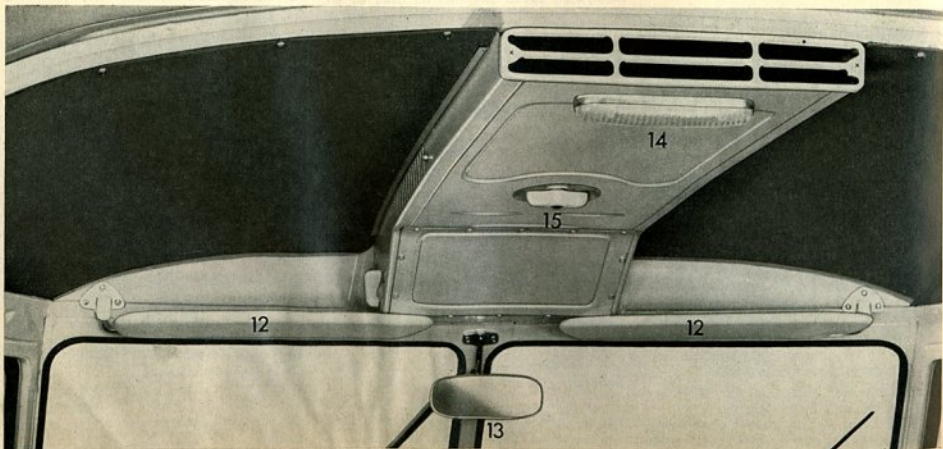
You can swing the sun visors towards the door windows to prevent dazzle from the side.

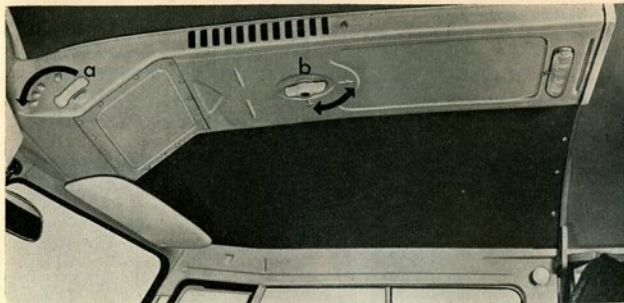
### 13 - Rear view mirrors

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

### 14 - Cab light

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





### 15 - Fresh air ventilation

When the vehicle is in motion, the driver's cab and the rear compartment are ventilated through the duct on the inside of the roof panel. The air flows in when the lever (a) on the left side is turned to the front. The amount of air entering can be controlled by setting the lever to one of the three position between "open" and "closed".

The other small handle (b) controls the distribution of air between cab and rear compartment. When the handle is pointing fore and aft, the air flows into the rear compartment, when it is crosswise, the air flows into the cab. Any position between the end stops distributes the air to both places at the same time.



The sun-roof can be opened and closed when the handle has been turned to the left. The roof can be locked in any position by turning the handle to the right.

It is advisable to open the roof fully before sliding it to the position desired. This will fold the material properly and avoid wear.

To close the roof, slide it forward until the locking hook engages and turn the handle to the right.

## In the footwell ...

16 - Clutch pedal

17 - Brake pedal

18 - Accelerator pedal

19 - Gearshift lever

20 - Handbrake

To release the locking knob, pull the lever back slightly first.

21 - Heating control knob

The knob on the right near the driver's seat turns on and regulates the heating:

Turning to left — Heat on

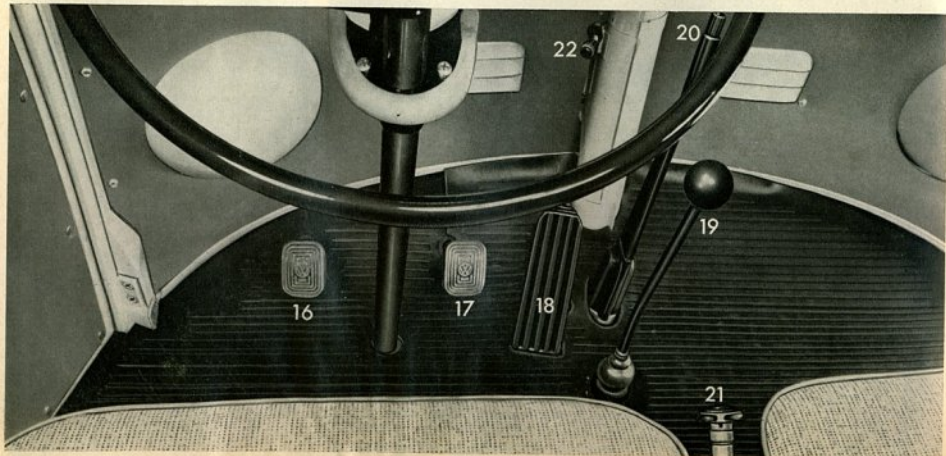
Turning to right — Heat off

22 - Warm air distributor lever

With the lever in front of the handbrake you can regulate the flow of warm air into the front footwell and to the defroster vents:

Lever up — Warm air to footwell

Lever down — Warm air to defroster vents.



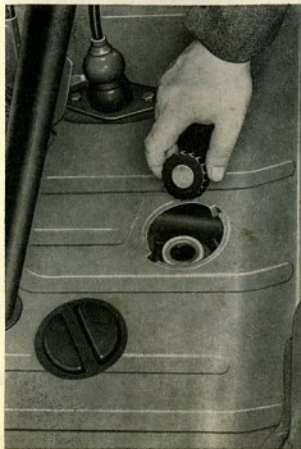
When the lever is between these positions, the air is distributed to footwell and defroster vents.

The heating will be more effective if you open one of the vent wings slightly when the heating is on because the fan can then force the warm air into the body interior more easily.

### 23 - Brake fluid reservoir

The container is located under the floor plates in the cab. The screw cap is accessible after removing the small cover plate in the floor.

The container must be at least three quarters full. If this is not so, have your VW Dealer check the brake system.



## Behind you...

### 24 - Spare wheel

Have the air pressure in the spare wheel checked from time to time. Inflate it to 2,8 kg/cm<sup>2</sup> (40 psi) which is the highest pressure you will normally require. It is then easier to lower the pressure when fitting the wheel than to inflate



to a higher pressure. The spare wheel is stowed behind the front seat. To remove it, unscrew the wing nut and take off securing bracket.

On the **Pick-up** the spare wheel is stowed in the locker under the load platform.

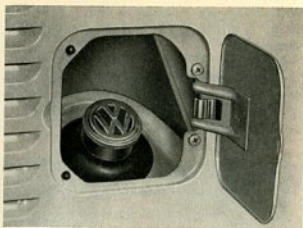
### 25 - Jack

The jack is kept in the box underneath the front seat. How it is used is described together with wheel changing on pages 27 and 28.

### 26 - Tools

The tool bag is also kept in this box. 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-end wrench 8 mm and 13 mm
- 1 double-ended socket wrench for fan pulley, wheel bolts and jack
- 1 socket wrench and bar for spark plugs
- 1 socket wrench 13 mm
- 1 bar for socket wrench (is also used to operate the jack)



### 27 - Fuel tank filler

The tank holds 40 liters (10.6 US gallons, 8.8 Imp gallons). The choice of fuel is left entirely to you. The Volkswagen will run satisfactorily on all normal commercial fuels which fulfil the octane requirements of the engine (91 octane).

If regular fuels with adequate anti-knock qualities are not available, premium fuels should be used or mixed with the regular fuel.

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

**Further hints on what to do before moving off and when on the move are given on pages 15 to 17.**

## 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** in the tank, when full, is sufficient for about 350 km (210 miles).

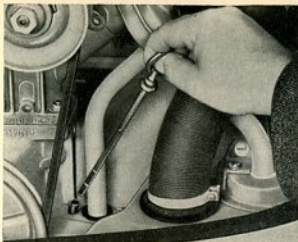
**The brakes** should be applied once or twice just after moving off to see that they are working properly.

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

The turn signals and brake lights must be checked with the ignition on. If a turn signal is defective, the warning lamp in the speedometer dial flashes much quicker than usual. The brake lights only work when the brake pedal is depressed.

**The oil level** should be between the two marks on the dipstick and must never be below the lower mark. Wipe the dipstick clean before checking.

The vehicle must be on a level surface when the oil level is checked otherwise the dipstick reading will be inaccurate. Do not check the oil immediately after stopping the vehicle. Wait at least 5 minutes to give the oil in the engine time to drain down into the bottom of the crankcase.



Try to always use the same brand of gasoline engine HD oil. Further details about the viscosity of the oil to be used are given on page 39.

### Tire pressures:

Front: ..... 2.0 kg/cm<sup>2</sup> (28 psi)

Rear:

up to ¾ payload ..... 2.3 kg/cm<sup>2</sup> (33 psi)

with full load ..... 2.8 kg/cm<sup>2</sup> (40 psi)

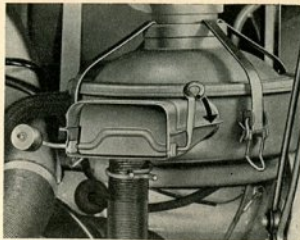
Spare wheel ..... 2.8 kg/cm<sup>2</sup> (40 psi)

Ambulance:

front and rear ..... 1.8 kg/cm<sup>2</sup> (26 psi)

### Two more important points:

1 - The carburetor of your Volkswagen should draw in preheated air at temperatures below



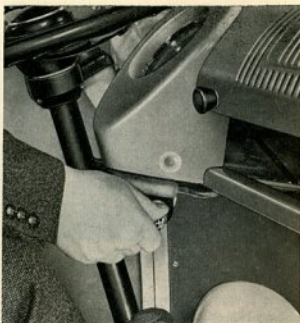
+ 10° C (50° F). This helps to keep down fuel consumption in cold weather and prevent the carburetor icing which sometimes occurs when air humidity is high.

The **weighted flap in the air cleaner intake pipe** must be free to move in the winter and the cool seasons. If the average temperature is above + 10° C, the flap must be fixed open by jamming the lever under the ridge on the intake pipe.

2 - 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 45.

## 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 or stalls at any 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 speedometer 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.

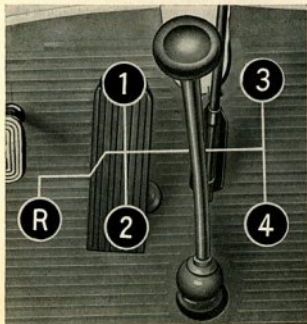
If the green warning light for the oil pressure comes on while driving, stop at once because the flow of lubricating oil in the engine may have ceased. Check the oil level first. Should the cause of the trouble be elsewhere, you are advised to get expert assistance.

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

## ...it runs ... and runs ... and runs ...

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 — 12
2nd gear	10 — 40	6 — 25
3rd gear	20 — 70	12 — 45
4th gear	30 — 105	20 — 65



When a particular traffic situation makes it essential to move rapidly, you can accelerate to above these speeds in 2nd and 3rd gear for brief periods and make full use of the engine output. A speed limiter on the engine prevents over-revving. 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 ( 6 and 20 mph)  
20 and 50 kph in 3rd gear (12 and 30 mph)  
30 and 75 kph in 4th gear (20 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.

Shift into **reverse gear** only when the vehicle is standing still. Reverse gear is fitted with a lock so that it cannot be engaged unintentionally. To engage reverse, press the lever down, move it over to the left and pull it back to the stop.

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 100 kph for example it is four times longer than at 50 kph. 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 aircooled 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. The maximum speed for a vehicle fitted with M+S and M+S spiked tires is 130 kph (80 mph).

The specific characteristics of winter tires can be improved by raising the tire pressures to 0.2 kg/cm<sup>2</sup> (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  $-25^{\circ}\text{C}$  ( $-13^{\circ}\text{F}$ ) 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.

**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.

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

**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.

**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.

## 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 23 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.

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

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

**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.

**The sun roof** does not require any special care. It is important however, to clean the plastic material regularly. When very dirty, the roof can be cleaned with a soap powder solution or one of the normal plastic cleaners. A hard brush will help to remove dirt from the grained surface of the material but care must be taken at the edges to avoid scratching the paint with the bristles. After washing the roof, the complete vehicle must be rinsed thoroughly with clear water.

Spots in the roof material must never be removed with paint thinner, chlorine-based

spot removers or similar solutions as this will damage the material. Stubborn spots can be removed by wiping with a cloth moistened with white spirit (benzine) and then rinsing well with a lukewarm soap powder solution.

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

## Car care materials for the Volkswagen

	Material	Package and quantity	VW Part No.	Properties	How to use
Vehicle washing	Shampoo	Tin 150 cc	000 096 111	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.
	Shampoo	Tin 250 cc	000 096 112		
	Sponge	17x11x5.5 cm	000 096 151		
Paint waxing	Wax	Tin 250 cc	000 096 011	Protects paint from weather. Keeps it flexible and durable.	Apply thinly to clean, dry paintwork with cotton wool or spray gun 000 096 064. Rub gently until paint shines again.
	Wax	Tin 1000 cc	000 096 012		
	Wash/wax	Tin 150 cc	000 096 121	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.
	Wash/wax	Tin 250 cc	000 096 122		
Paint polishing	Paint care	Tube 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	Tin 250 cc	000 096 001	Freshens up paint which has lost gloss.	
	Paint polish	Tin 1000 cc	000 096 002		
	Polishing cotton	Bag 200 grams	000 096 161	—	—
Removal of tar spots from paint and chrome	Tar remover	Tin 150 cc	000 096 051	Softens and removes tar and asphalt spots	Soak cotton wool with tar remover and dab it on the spots. Allow it to work for a short time then wipe tar off.
	Tar remover	Tin 250 cc	000 096 052		

	Material	Package and quantity	VW Part No.	Properties	How to use
Removal of insects from paint and chrome	Insect remover	Tube 80 grams	000 096 081	Removes insects from paint and glass	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.
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	Bottle 500 cc	000 096 063	Forms a durable, transparent film on the chrome	Apply evenly to dry chrome. Spray on where possible (with spray gun 000 096 064).
	Spray gun	—	000 096 064	—	Used to apply liquid chrome protective film. Can be used for spraying other liquids.
	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 PVC sliding roof	Plastic cleaner	Tin 200 grams	R 3	Cleans and protects PVC material	Apply cleaner with a damp sponge and rub with a dry cloth.

	Material	Package and quantity	VW Part No.	Properties	How to use
Cleaning windshield	Window cleaner	Bottle 200 cc	000 096 105	<b>Added to water in washer</b> it removes stubborn dirt, silicone and grease from windshield. Can be used as <b>anti-freeze</b> to keep washer in action in winter. Can also be used neat to remove ice from windshield.	<b>As windshield cleaner:</b> in the summer, add about 1/10 of contents of bottle or 1 sachet to water in washer. <b>As anti-freeze:</b> 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 to —2° C.
	Window cleaner	Sachet approx. 35 cc	000 096 101		

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 luke-warm soap solution or a dry foam cleaner. If the seats and backrests are covered with leatherette, only use a dry foam cleaner because the material used for these parts is air-permeable and liquid cleaners would penetrate into the textile backing straightaway. This material can be recognized by the striped design.

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 wheels are 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). 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.

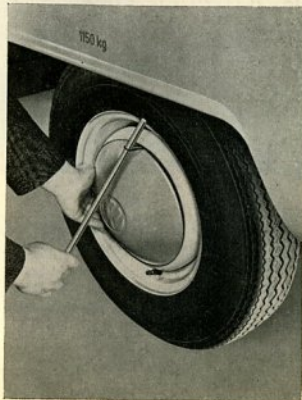
All other repairs should always be carried out by one of our service stations. The service organization of the VW factory offers you a wide-spread network of authorized workshops staffed by skilled mechanics and equipped with all the special tools and appliances required. Whenever you see the familiar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

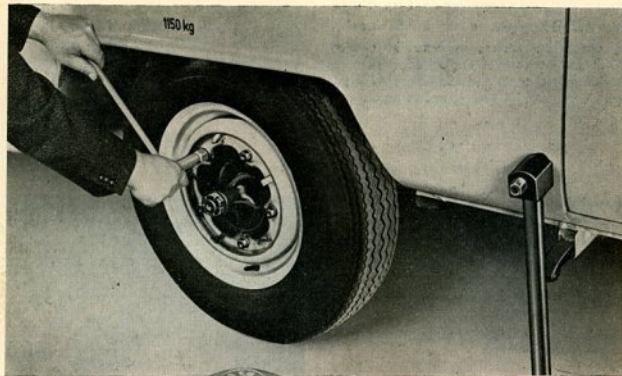
### Wheel changing

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 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.

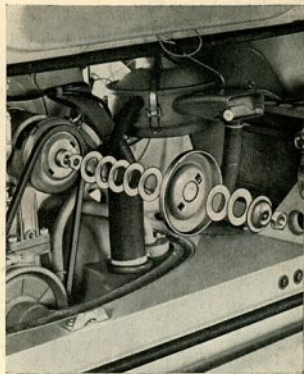
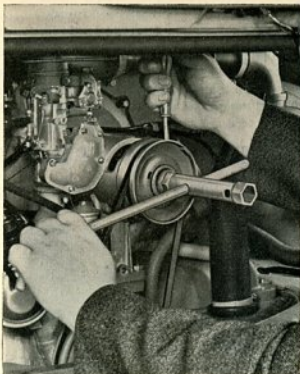


Insert remaining bolts.

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.



### Adjusting or replacing the fan belt

The fan belt tension is correct when the belt can be pressed inwards about 1.5 cm (.6") 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 500 km (300 miles) and the tension corrected if necessary. Even though the belt normally has a long service life, it is advisable to carry a spare on the vehicle.

To adjust the belt, remove the rear part of the pulley on the generator. When loosening and tightening the nut, place a 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.

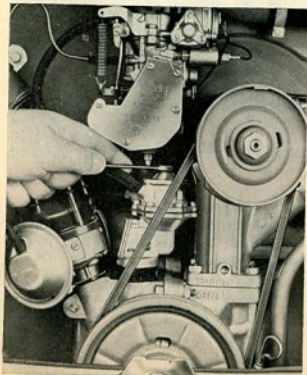
### Cleaning fuel pump filter

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.



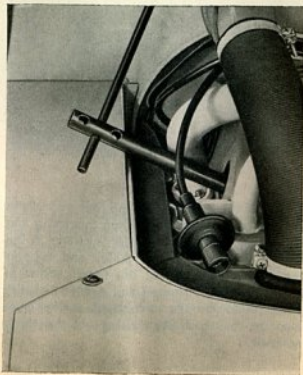
### Removing and installing spark plugs

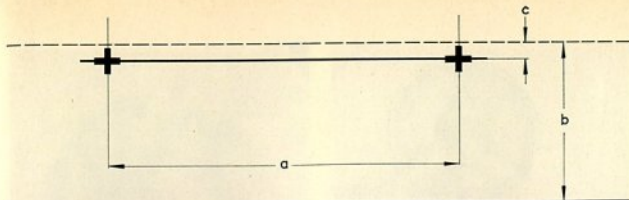
Pull connector off and screw plug out with socket wrench and bar.

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") but when the weather is very cold it can be temporarily reduced to 0.4—0.5 mm (.016—.020") 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).





a = 1012 m  
b = Height of headlamp center from ground  
c = 50 mm (2") at a distance of 5 m from screen.

### Aiming the headlights

If a headlight aiming device is not available, proceed as follows:

Position the vehicle on a level surface 5 m (16 ft. 5 ins) away from a vertical wall.

The tire pressures must be correct.

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.

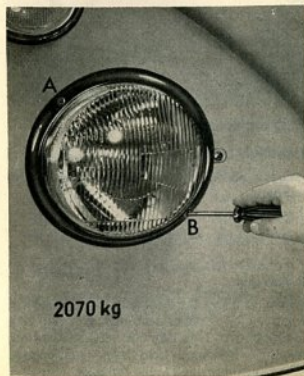
b - Vehicle unladen. One person or 70 kg in driving seat.

Draw two crosses with setting lines on the wall to the measurements in sketch. 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.

Aim the headlights individually by turning the screws in the headlight rim. 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.

A - Vertical aim  
B - Lateral aim



On Volkswagen Transporters with "Sealed-Beam" headlights a different screen is used and the beams aimed as follows:

Setting	Right lamp	Left lamp
Vertical	<b>upper screw:</b> clockwise — lower anti-clock — higher	<b>lower screw:</b> clockwise — higher anti-clock — lower
	<b>lower screw:</b> clockwise — beam to right anti-clock — beam to left	<b>upper screw:</b> clockwise — beam to left anti-clock — beam to right
Lateral		

## Bulb chart

Bulb for	V = Volts German designation	W = Watts Part No.
Headlight .....	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 lights in dash board, speedo and fuel gauge .....	J 12 V 2 W	N 17 722 2
Interior light .....	L 12 V 5 W	N 17 725 2
<b>Bus</b>		
Clock light .....	J 12 V 2 W	N 17 722 2
<b>Ambulance</b>		
Back-up light .....	12 V 25 W	N 17 733 2
Spot light .....	12 V 25 W	211 941 253
Red Cross sign .....	F 12 V 15 W	N 17 716 2

## Bulb replacement

### Headlight bulb

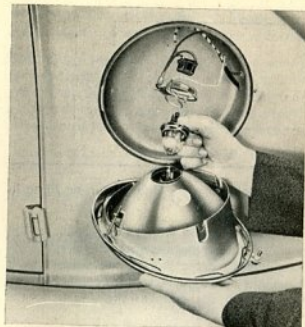
Remove screw in the center of rim at the bottom.

Take lamp out.

Pull connector off bulb base.

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.

### Replacement of Sealed-Beam unit

Unscrew the large slotted screw in headlight rim and take out the complete headlight unit.

Pull cable connector off the Sealed-Beam unit and disconnect the two cables from the parking light bulb holder.

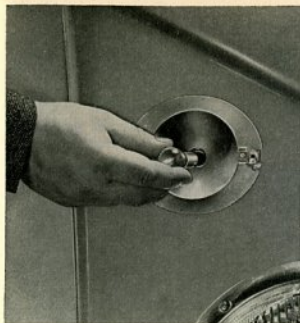
Remove the five retaining springs and replace the Sealed-Beam unit.



**Caution:** The removal of the springs must be accomplished without using any tools. Hold the unit with one hand and with the thumb of the other hand remove the springs. The use of a screwdriver or of any other instrument to remove the retaining springs may cause a spring to jump out.

The parking light bulb can be replaced after removing the bulb holder.

When installing the headlight, ensure that the Sealed-Beam unit and the sealing ring between lamp and fender are located correctly.



### Front turn signal bulb

Remove two screws.

Take lens and gasket 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

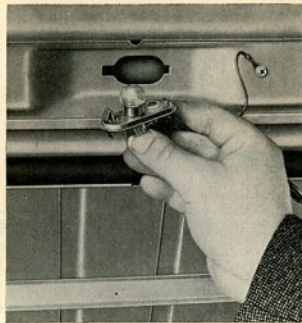
Bottom — stop/tail

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

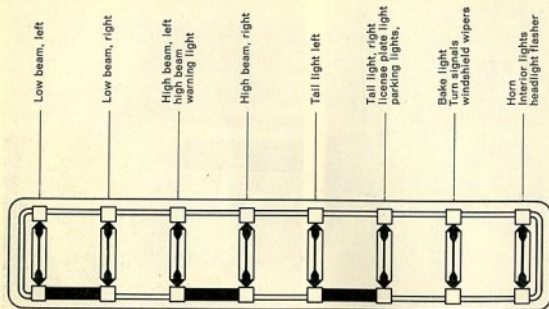
Open engine compartment lid.

Press bulb holder spring to right and pull holder out.

Press bulb lightly into holder, turn and take out.

Insert new bulb.

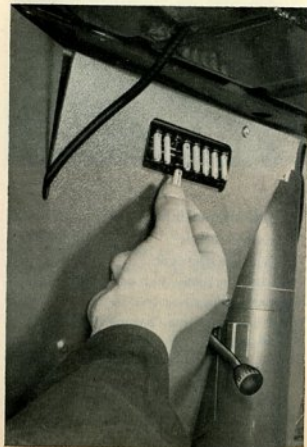
Insert holder on right first, then press in on left until retaining spring engages.



## Replacing fuses

The fuse box which has a transparent cover is located under the parcel shelf.

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, disconnect the two battery cables and remove the battery clamp.

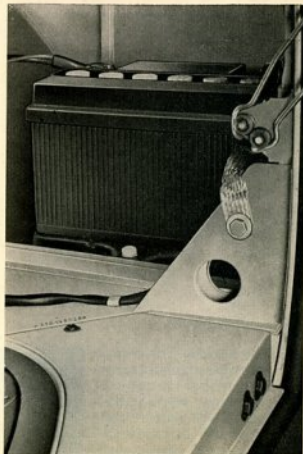
To check the acid level, remove the plugs. The acid should always be just over the tops of the plates and up to the mark if there is one. Some batteries have a small plastic cup in the filler hole and others have a bar across the top of the plates. If the level is too low it must be topped up with distilled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

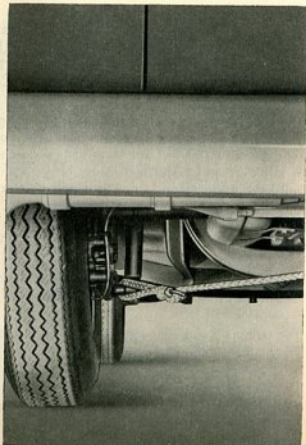
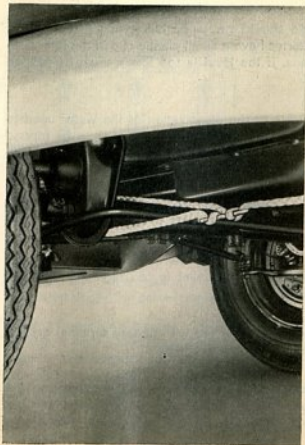
If you lay your vehicle up for a prolonged period, it is advisable to take the battery to a workshop. A battery which is not in constant use will discharge itself in time and this can cause permanent damage to the plates if the battery is not checked about every four weeks and charged as necessary.



## Towing

Just in case you wish to attach a towrope to your vehicle one day, please note that the bumpers are not suitable for this purpose. If you do not expect the towing effort to be excessive, the rope can be attached at the rear to the shock absorber bracket. This point is not very easy to reach but it does at least ensure that your desire to help does not result in damage to your vehicle.

At the front the rope should be attached to the lower axle tube as near as possible to the right-hand side member. The rope must be passed over the stabilizer and then round the axle tube.

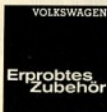


**Give your Volkswagen that individual touch.**

## **Fit approved Volkswagen accessories.**

Approved Volkswagen accessories are not just any old accessories. They have either been designed specially for the Volkswagen or selected from the vast range of accessories available and tested for use on the Volkswagen in the Volkswagen factory. The trademark "Approved Accessories" is your guarantee for material quality, good workmanship and reliability.

Approved VW accessories are supplied by your VW Dealer who will also fit them for you if necessary. You can fit lots of the accessories yourself.



**Approved Accessories**  
**Accessoires Agréés**  
**Accessori Approvati**  
**Accesorios Aprobados**  
**Utryövade Tillbehör**  
**Acessórios Aprovados**  
**Beproeftde Accessoirs**

## Proper lubrication . . .

means regular and careful lubrication. The lubrication chart on page 54 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).

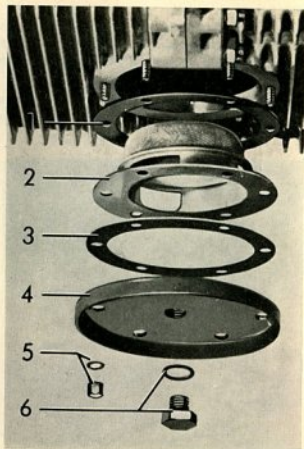
Due to the detergent properties of the HD oil, the fresh oil will look very dark after the vehicle has been running for only a short time. This need not worry you and under normal operating conditions there is no reason whatever to change the oil at shorter intervals than every 5000 km (3000 miles). 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  $-25^{\circ}\text{C}$  the oil should be changed every 1250 km (750 miles).



- 1 - Gasket
- 2 - Strainer
- 3 - Gasket
- 4 - Strainer cover
- 5 - Cap nuts and washers
- 6 - Drain plug and washer

## Some more information about oil

When changing and topping up the oil, try to always use the same brand of HD oil for gasoline engines. 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. It is best to select "your" oil at the first 500 km oil change and stick to this brand on all occasions. Should you have any doubts at all, your VW Dealer will be pleased to advise you.

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  $-15^{\circ}\text{C}$  ( $5^{\circ}\text{F}$ )

**SAE 5 W\***         In countries with arctic climates and temperatures below  $-25^{\circ}\text{C}$  ( $-13^{\circ}\text{F}$ )

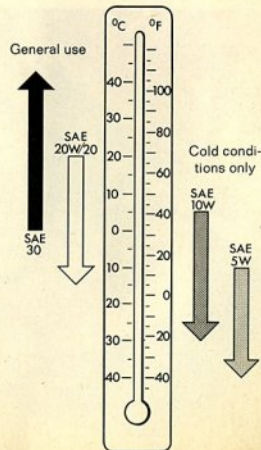
\* Avoid driving at high speeds for long periods if using SAE 10 W oil and the outside temperature is above  $0^{\circ}\text{C}$  or if using SAE 5 W oil when the temperature is above  $-15^{\circ}\text{C}$ .

All SAE grades cover a temperature range of about  $35^{\circ}\text{C}$  and the ranges of two neighbouring grades overlap by at least  $20^{\circ}\text{C}$ . 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. This is subject of course to the stipulation that the same brand of oil must be used.

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



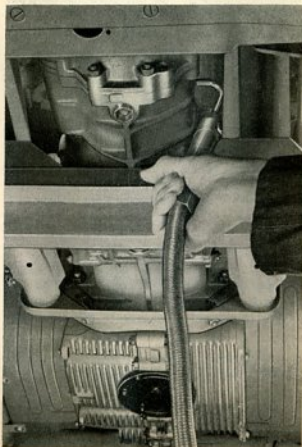
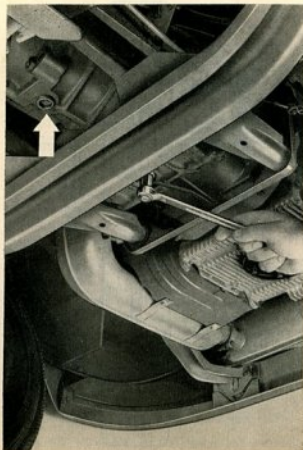
## Transmission

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.

Both magnetic drain plugs should be removed

and the old oil drained off while it is still warm. The plugs must be cleaned thoroughly and 2.5 liters of good quality SAE 90 hypoid oil put in.

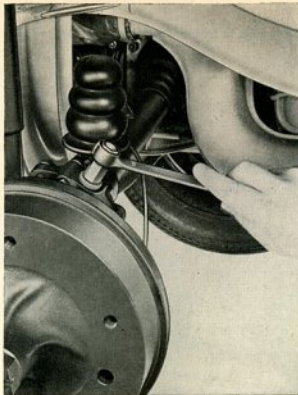
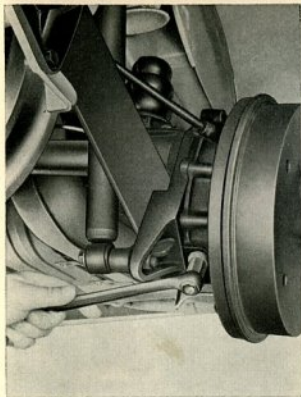
The oil sometimes runs into the transmission



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 rear axle that the correct amount of oil is used in the transmission.

The oil level in the transmission should be checked every 10,000 km (6,000 miles). At the same time the rear axle should be checked for leaks.

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



### Reduction gears

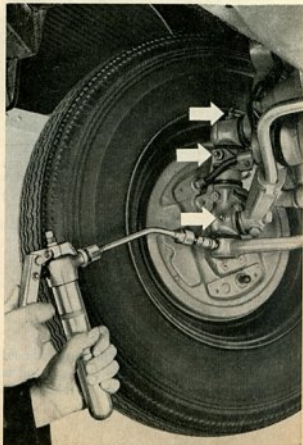
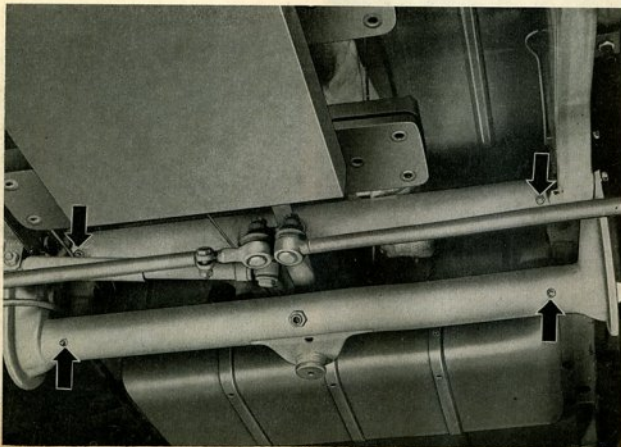
The oil in the reduction gear housings should always be changed when the rear axle oil is changed. The rear wheels must be taken off to do this.

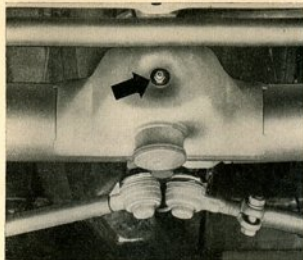
The plugs must be cleaned carefully and 0.25 liter (.53 pint) of SAE 90 hypoid transmission oil put in each side.

## 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 four on each king pin should be lubricated with a lithium-based **multi-purpose** grease.





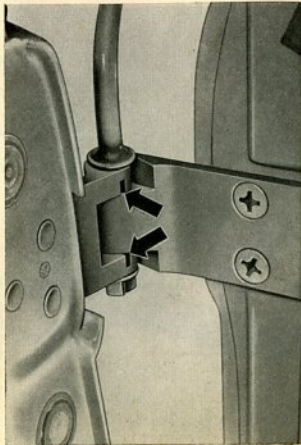
The same grease is used for the swing lever shaft. The nipples and the grease gun nozzle should be cleaned carefully before greasing commences. Place gun on nipples and inject grease until fresh grease starts to come out of the bearings.

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 frequently on poor roads, we recommend that the king pins are greased every 2500 km (1500 miles).

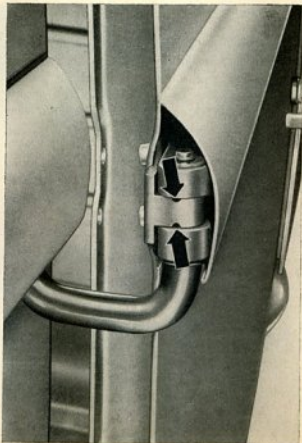
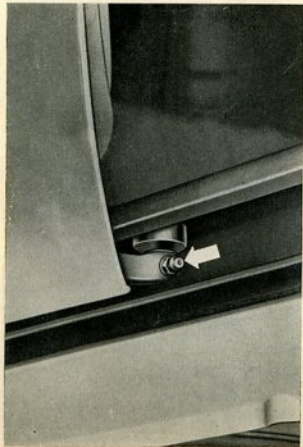
### Doors and hoods

At least every three months the door hinges should be lubricated with oil. On the inside of the hinges are lubricating slots which should be cleaned and a few drops of oil put in. This also applies to the hinges of the engine compartment lid and the pivots of the rear flap hinges.

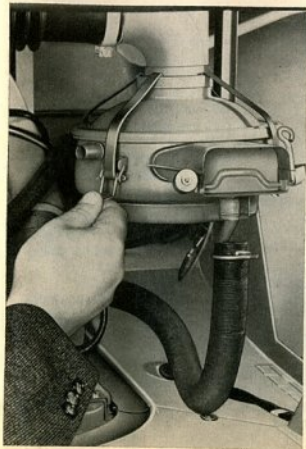


On vehicles with **sliding doors**, the lower guide and support rollers should be lubricated at the same time. The rollers have grease nipples and are lubricated with a grease gun.

The joint of the hinge secured to the sliding door also has two lubrication slots which should be given a few drops of oil. Please wipe surplus oil off immediately.



All lock cylinders should be treated with graphite. Dip the key into the graphite, insert key into lock and move it back and forth several times.



### 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:

Pull crankcase breather hose off air cleaner.

Pull pre-heater hose off air cleaner intake elbow.

Loosen four clips and take cleaner off elbow.

Take top part out. The top part must not be laid down with the filter element upwards.

Clean bottom part carefully and fill to the mark with fresh engine oil (approx. 0.3 liter). Oil viscosity: 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.

When installing the air cleaner, ensure that it fits properly on the intake elbow.

Check that the warm air flap in the intake pipe moves freely. At temperatures above  $+10^{\circ}\text{C}$  this flap should be fixed in position but at temperatures below  $+10^{\circ}\text{C}$  it should be free to move and regulate the flow of warm air according to the speed of the engine.

## 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 pump	
Downdraft carburetor with automatic choke and accelerator pump	
Oil bath air cleaner with air pre-heating connection	
Bore .....	83 mm (3.27 ins)
Stroke .....	69 mm (2.72 ins)
Capacity .....	1493 cc (91.10 cu. ins)
Compression ratio .....	7.5 : 1
Maximum output DIN .....	44 bhp at 4000 rpm
Maximum output SAE .....	53 bhp at 4200 rpm
Maximum torque DIN .....	10.4 mkg at 2000 rpm
Maximum torque SAE .....	78.1 ft. lb. at 2600 rpm
Average piston speed .....	9.2 m/s (1811 ft/min) at 4000 rpm
Valve clearance with engine cold .....	0.10 mm (.004")
Fuel consumption <sup>1)</sup>	
Delivery Van, Bus, Kombi, Pick-up without cover .....	approx. 9.7 liters per 100 km 24 miles per US gallon 29 miles per Imp. gallon
Pick-up with cover, Pick-up with large platform, with large wooden platform and High-roofed Delivery Van .....	approx. 10 liters per 100 km 23.5 miles per US gallon 28 miles per Imp. gallon
Fuel rating .....	91 Octane (Res. F 1)
Oil consumption .....	0.5—1.4 per 1000 km 1.7—4.8 US pints per 1000 miles 1.4—4.0 Imp. pints per 1000 miles

<sup>1)</sup> Measured consumption plus 10 %, with half load at a steady  $\frac{3}{4}$  of maximum speed on level road.

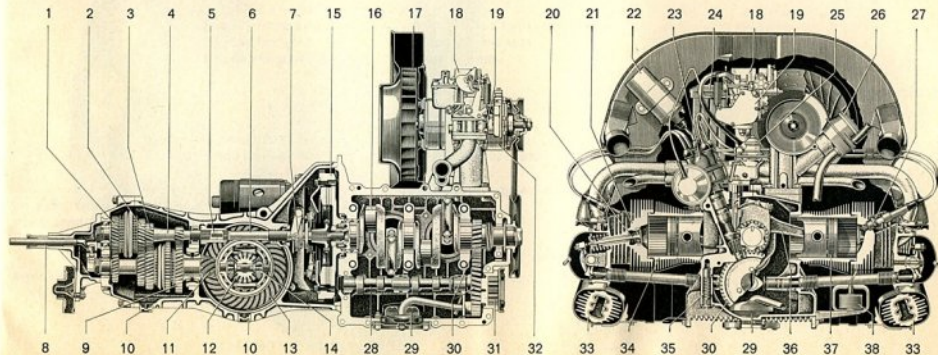
### Power transmission

Single plate, dry clutch  
 Baulk synchronized four-speed gearbox and bevel gear differential in one housing  
 Swing axles with reduction gears  
 Gear ratios: 1st gear 3.80:1, 2nd gear 2.06:1, 3rd gear 1.26:1, 4th gear 0.82:1, reverse gear 3.88:1.  
 Differential ratio: 4.375:1 and reduction gear ratio 1.26:1  
 Clutch pedal free play: 10—20 mm (.4—8")

- 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 - Oil drain plugs
- 11 - Drive pinion
- 12 - Differential side gear
- 13 - Ring gear

- 14 - Differential pinion
- 15 - Flywheel
- 16 - Crankshaft
- 17 - Fan
- 18 - Carburetor
- 19 - Speed limiter
- 20 - Valve
- 21 - Cylinder head
- 22 - Ignition coil
- 23 - Distributor
- 24 - Oil cooler
- 25 - Fuel pump
- 26 - Oil filler and breather

- 27 - Spark plug
- 28 - Camshaft
- 29 - Oil strainer
- 30 - Camshaft drive gear
- 31 - Oil pump
- 32 - Generator
- 33 - Heat exchanger
- 34 - Cylinder
- 35 - Oil pressure relief valve
- 36 - Connecting rod
- 37 - Piston
- 38 - Thermostat



## Chassis

Unitary body, frame plates reinforced with side and cross members, front axle bolted to frame side members, engine/transmission bolted to extensions from rear axle tube.

Independent suspension: twin, cranked trailing arms at front, swing axles with trailing arms at rear, torsion bar springing. Double-acting, telescopic shock absorbers, stabilizer at front.

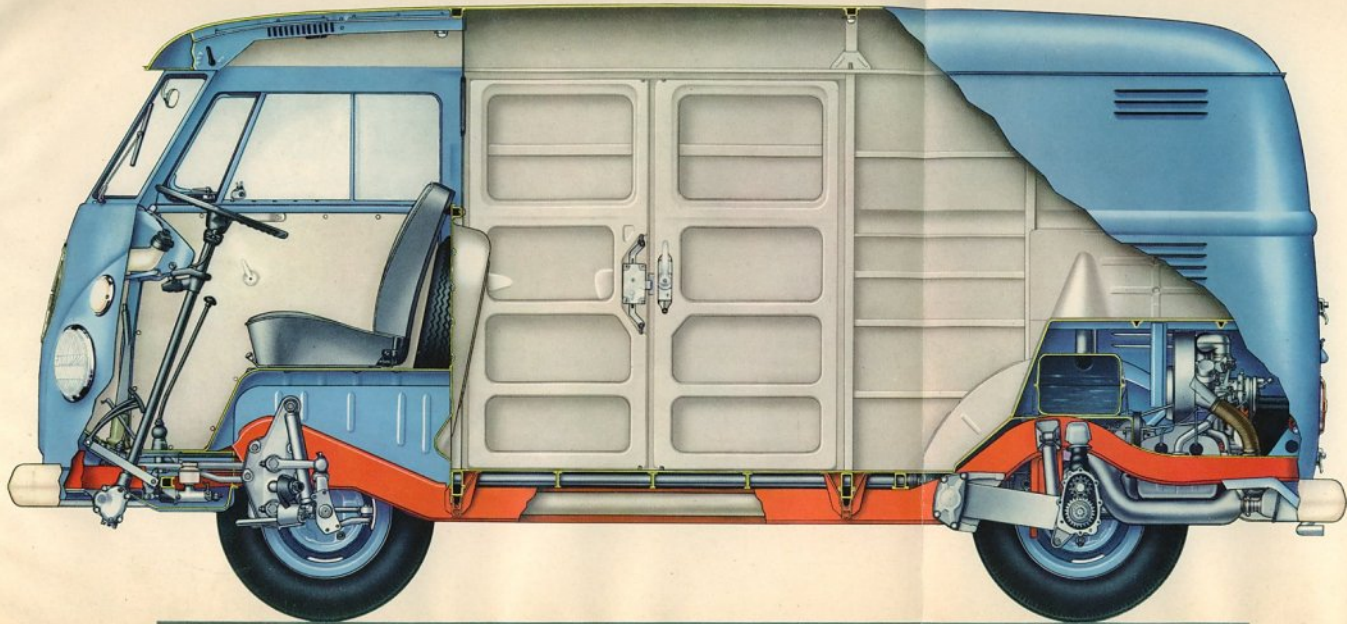
Ross type steering gear with maintenance-free tie-rods and hydraulic steering damper.

Hydraulic four-wheel foot brakes, mechanical hand brake effective on rear wheels.

Wheelbase .....	2400 mm (94.5 in.)
Turning circle diameter .....	approx. 12 m (39 ft.)
Track at front .....	1375 mm (54.1 in.)
Toe-in: unladen .....	0—2 mm (.0— .08 in.)
fully loaded .....	2—5 mm (.08— .2 in.)
Camber .....	0°40' ± 30'
Track at rear .....	1360 mm (53.5 in.) at 0° camber
Wheels .....	5 JK x 14 (Wheel discs with drop center rims)
Tires .....	7.00—14 6 PR
Tire pressures: front .....	2.0 kg/cm <sup>2</sup> (28 psi)
rear with ¾ payload .....	2.3 kg/cm <sup>2</sup> (33 psi)
with full load .....	2.8 kg/cm <sup>2</sup> (40 psi)

## Electrical system

Voltage .....	12 Volts
Battery .....	45 Watts
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 .....	7.5° before TDC
	(Rotor arm pointing to No. 1 cylinder mark on edge of distributor housing and left-hand mark on crankshaft pulley in line with crankcase joint.)
Contact breaker gap .....	0.4 mm (.016 in.)
Spark plug .....	Bosch W 175 T 1 } or plugs with similar values Beru 175/14 } from other manufacturers. Champion L 87 y }
Plug thread .....	14 mm
Plug gap .....	0.7 mm (.028 in.)





## Dimensions and weights

	Delivery Van	High-roofed Delivery Van	Kombi	Micro Bus	Micro Bus De Luxe	Fire Truck	Ambulance
Length .....mm (in)	4280 (168.5)	4280 (168.5)	4280 (168.5)	4280 (168.5)	4300 (169.3)	4280 (168.5)	4280 (168.5)
Width .....	1750 (68.9)	1750 (68.9)	1750 (68.9)	1750 (68.9)	1800 (70.9)	1750 (68.9)	1750 (68.9)
Height, unladen .....	1925 (75.8)	2285 (90.0)	1925 (75.8)	1925 (75.8)	1925 (75.8)	2175 <sup>1)</sup> (85.6)	1915 <sup>2)</sup> (75.4)
Ground clearance .....	200 (7.9)	200 (7.9)	200 (7.9)	200 (7.9)	200 (7.9)	200 (7.9)	190 (7.5)
Unladen weight .....kg (lbs)	1070 (2359)	1110 (2447)	1140 (2514)	1150 (2535)	1150 (2535)	1200 (2645)	1250 (2756)
Payload .....	1000 (2204)	960 (2116)	930 (2050)	920 (2029)	920 (2029)	950 (2095)	650 (1433)
Gross vehicle weight .....	2070 (4563)	2070 (4563)	2070 (4563)	2070 (4563)	2070 (4563)	2150 (4740)	1900 (4189)
Permissible front axle load .....	950 (2094)	950 (2094)	950 (2094)	950 (2094)	950 (2094)	1000 (2205)	950 (2094)
Permissible rear axle load .....	1150 (2535)	1150 (2535)	1150 (2535)	1150 (2535)	1150 (2535)	1200 (2645)	1050 (2315)

<sup>1)</sup> With emergency light

<sup>2)</sup> With emergency light: 2190 mm (86.2 in)

## Dimensions and weights

	Pick-up		Double Cab Pick-up		Pick-up with large platform	Pick-up with large wooden platform
	without cover	with cover	without cover	with cover		
Length .....mm (in)	4290 (168.9)	4290 (168.9)	4290 (168.9)	4290 (168.9)	4290 (168.9)	4300 (169.3)
Width .....	1750 (68.9)	1750 (68.9)	1750 (68.9)	1750 (68.9)	2020 (79.5)	1980 (78.0)
Height, unladen .....	1910 (75.2)	2200 (86.6)	1910 (75.2)	2200 (86.6)	1910 (75.2)	1910 (75.2)
Ground clearance .....	200 (7.9)	200 (7.9)	200 (7.9)	200 (7.9)	200 (7.9)	200 (7.9)
Unladen weight .....kg (lbs)	1085 (2392)	1120 (2469)	1130 (2491)	1150 (2535)	1130 (2491)	1160 (2557)
Payload .....	985 (2172)	950 (2095)	940 (2073)	920 (2029)	940 (2073)	910 (2006)
Gross vehicle weight .....	2070 (4564)	2070 (4564)	2070 (4564)	2070 (4564)	2070 (4564)	2070 (4564)
Permissible front axle load .....	950 (2095)	950 (2095)	950 (2095)	950 (2095)	950 (2095)	950 (2095)
Permissible rear axle load .....	1150 (2535)	1150 (2535)	1150 (2535)	1150 (2535)	1150 (2535)	1150 (2535)

## Capacities

Fuel tank .....	40 liters (10.6 US gallons; 8.8 Imp. gallons)
Engine .....	2.5 liters (5.3 US pints; 4.4 Imp. pints)
Rear axle and transmission .....	2.5 liters
Reduction gears .....	0.25 liter each (.53 US pint; .44 Imp. pint)
Brake system .....	0.30 liter
Oil bath air cleaner .....	0.30 liter (.63 US pint; .53 Imp. pint)
Windshield washer .....	0.75 liter (1.5 US pints; 1.2 Imp. pints)

## Performance

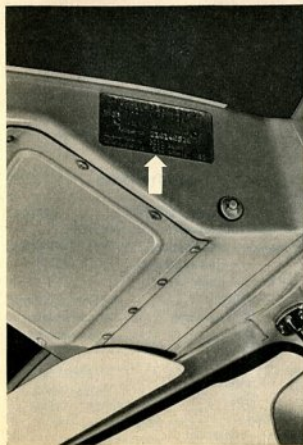
Maximum and cruising speed .....	105 kph (65 mph)
Pick-up with cover, Pick-up with large platform, Pick-up with large wooden platform .....	95 kph (60 mph)
Climbing ability .....	1st gear 28 % 2nd gear 14.5 %
	3rd gear 8 % 4th gear 4.5 %

## 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.

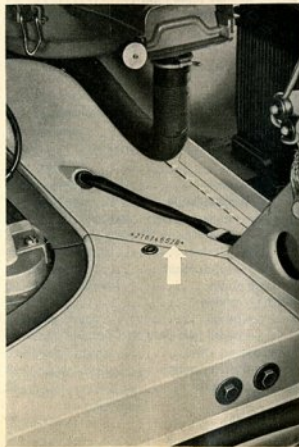
### The Identification Plate

is in the cab on the right-hand side of the air duct.



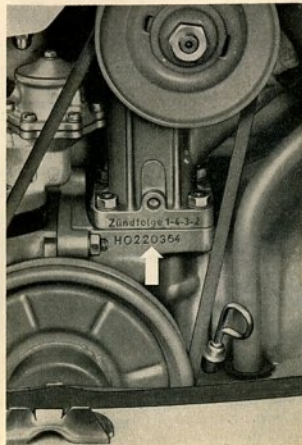
### The Chassis Number

is stamped in the right-hand engine cover plate.



### The Engine Number

is on the generator support flange.



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## 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.

Lubrication chart

Operation	W 1 at 500 km (300 miles)	WS 5 At 5 000, 15 000, 25 000 km (3000, 9000, 15 000 miles) and so on	W 10 At 10 000, 20 000, 30 000 km (6 000, 12 000, 18 000 miles) and so on
Engine: Change oil, clean strainer, check for leaks	×	×	×
Rear axle: Change oil, clean magnetic drain plugs, check for leaks Reduction gears: Change oil	×		W 10 Only at 50 000, 100 000 km (30 000, 60 000 miles) and so on
Rear axle: Check oil level, top-up as necessary, check for leaks			×
Front axle: Lubricate	×	×	×
Door and hood locks, door hinges: 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

The door and hood locks and the door hinges should be lubricated at least every 3 months.

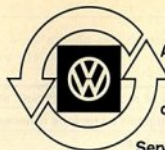
If your Transporter is driven less than 5000 km (3000 miles) a year, have the front axle greased once a year.

# Maintenance chart

Operation	W 1 at 500 km (300 miles)	W 10 At 10 000, 20 000, 30 000 km (6 000, 12 000, 18 000 miles) and so on
Check security of rear axle shaft nuts and tighten if necessary	X	
Check V belt, tighten or replace if necessary	X	X
Clean fuel pump filter	X	X
Check contact breaker points, replace if necessary: lubricate distributor, adjust breaker gap and ignition timing	X	X
Check valve clearance and fit new cylinder head cover gaskets	X	X
Clean spark plugs, check and adjust plug gaps. Check compression		X
Check control flap for carburetor pre-heating		X
Check rubber valve for crankcase ventilation and replace if necessary, check exhaust system for damage		X
Adjust clutch pedal free-play	X	X
Check dust seals on tie-rod ends. Check security of tie-rods and tighten if necessary	X	X
Adjust torsion arm link pins		X
Clean front wheel bearings, pack with grease and adjust (includes removal and installation of both brake drums)		W 50 Only at 50 000, 100 000 km (30 000, 60 000 miles) and so on
Check toe-in	X	X
Steering gear: Check and adjust play between peg and worm		X
Correct tire pressures. Check tightness of wheel bolts and tighten if necessary	X	X
Check tires for wear and damage, rectify inflation pressures		X
Check brake system for leakage and damage, check fluid level and top-up if necessary, adjust hand and foot brakes	X	X
Check thickness of brake linings		X
Check operation of electrical equipment, adjust headlight alignment	X	X
Road test: Check efficiency of foot and hand brakes, check and adjust heating and idling	X	X



GENUINE VW PARTS are the proper replacement parts for the Volkswagen. They guarantee accuracy, quality and reliability. Every part of your Volkswagen is available as a Genuine VW Part and all are naturally of the same high quality as the original parts on the vehicle when it leaves the factory. That is why Genuine VW parts are covered by the same Warranty conditions as brand new vehicles. The genuine parts are expertly installed in every VW workshop.



Austauschdienst  
Exchange Service  
Service  
d'échange-standard  
Servizio rotazione  
Servicio de Canjeo

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VW EXCHANGE PARTS are also replacement parts for your Volkswagen just like the Genuine VW Parts. They are covered by the same Warranty conditions as Genuine VW parts and are available in every VW workshop. But there is one difference: The price.

VW Exchange Parts are cheaper than Genuine VW Parts but exactly the same in quality. The exchange parts are not new parts, but parts which have been reconditioned in the Volkswagen factory. That is why you have to hand in the old repairable part to get an exchange part.

Please consult your VW workshop on all questions concerning repairs. They will be pleased to advise you and your vehicle will be in good hands.



