Instruction and Maintenance Manual

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206 LASSEN DRIVE
SAN BRUNO, CALIF.
871-5370

Key # 271031

Customer identification card imprint

Customer identification card

This is another feature of Volkswagen Service that adds to your convenience. Just present this Manual whenever you stop for service at your Authorized Volkswagen Dealer. Your Identification Card will quickly furnish the Service Adviser with your name and address and all pertinent vehicle data.

Contents

All pictures are of the Volkswagen Station Wagon and the text is based on this vehicle. Where the controls and equipment of the commercial models differ considerably, attention is drawn to the difference. The section on technical data however, contains the most important details for all models.

Instruction and Maintenance Manual

Ron Price VW
589-9788

1967 Models

VOLKSWAGENWERK AG · WOLFSBURG

It is advisable . . .

to read the first part of this instruction manual, which deals with the operation of your Volkswagen Station Wagon, 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 warranty voucher, terms of warranty and a punchcard for the free-of-charge maintenance service. The stamps in the squares show that the lubrication and maintenance services have been carried out regularly by an Authorized Volkswagen Dealer.

Only one key is required to open the doors and to start the engine. Be sure the key number is recorded in the front of the manual. If you should lose the key, you can obtain a replacement from your Authorized Volkswagen Dealer.

Sit down and make yourself comfortable . . .

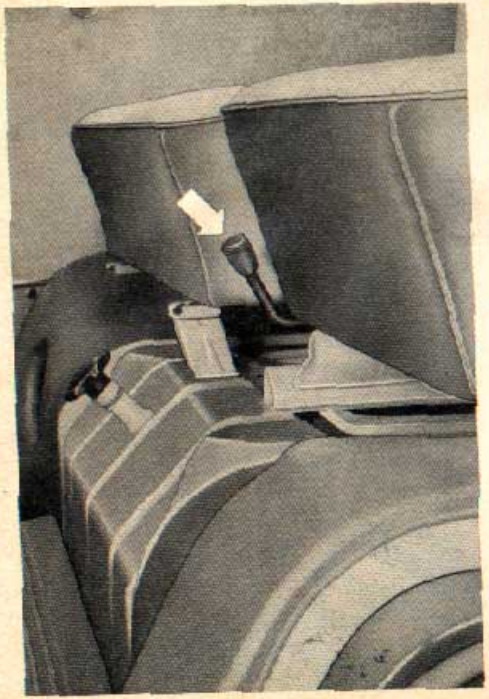
When driving, you must be comfortable. That is why the seat position and backrest rake of the driver's seat in your Station Wagon can be altered to suit your requirements.

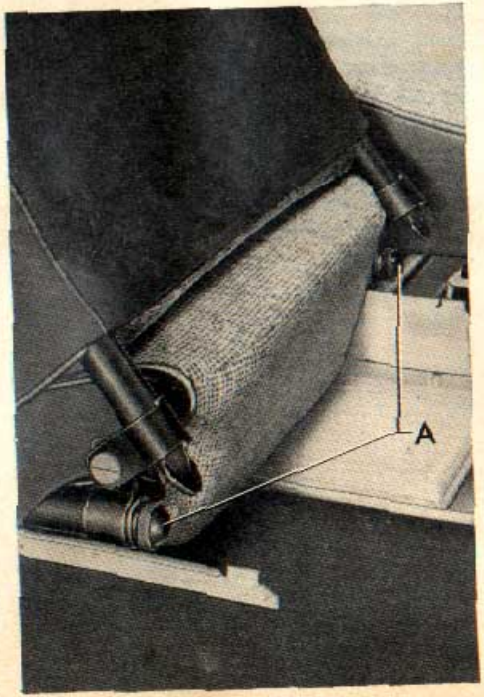
This is quite simple to do — just lift the lever at the front right-hand side of the seat frame and slide the seat forward or backward.

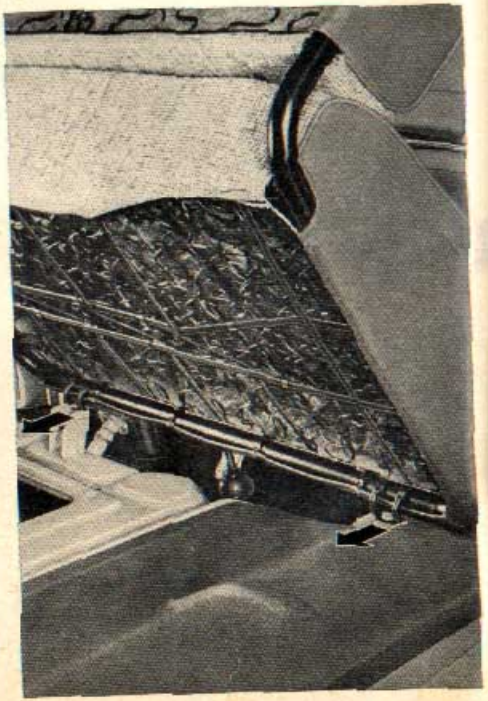
After adjusting, be sure the seat is securely locked in position.

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.





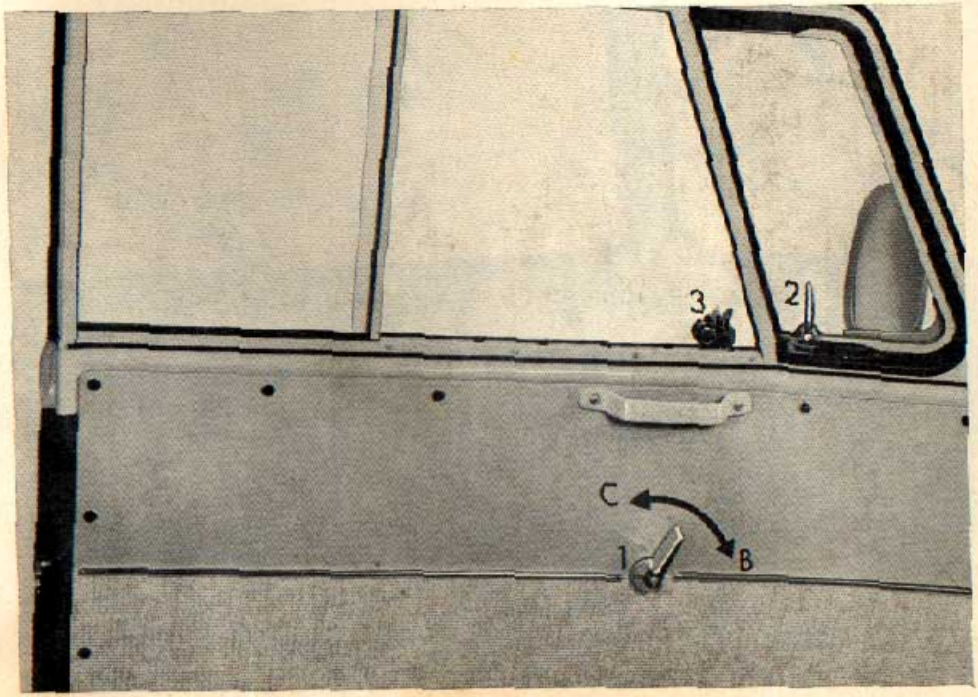


Before closing the door

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 lever forward (B).

To open the door just pull the lever 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 with locking button**
3 - ***Sliding window fastener***

In front of you - the instrument panel . . .

Even if this is not your first Volkswagen Station Wagon, just have a quick look at the dash and try out the various knobs and levers with the *ignition switched on:*

1. Speedometer

The following warning lamps are in the speedometer dial:

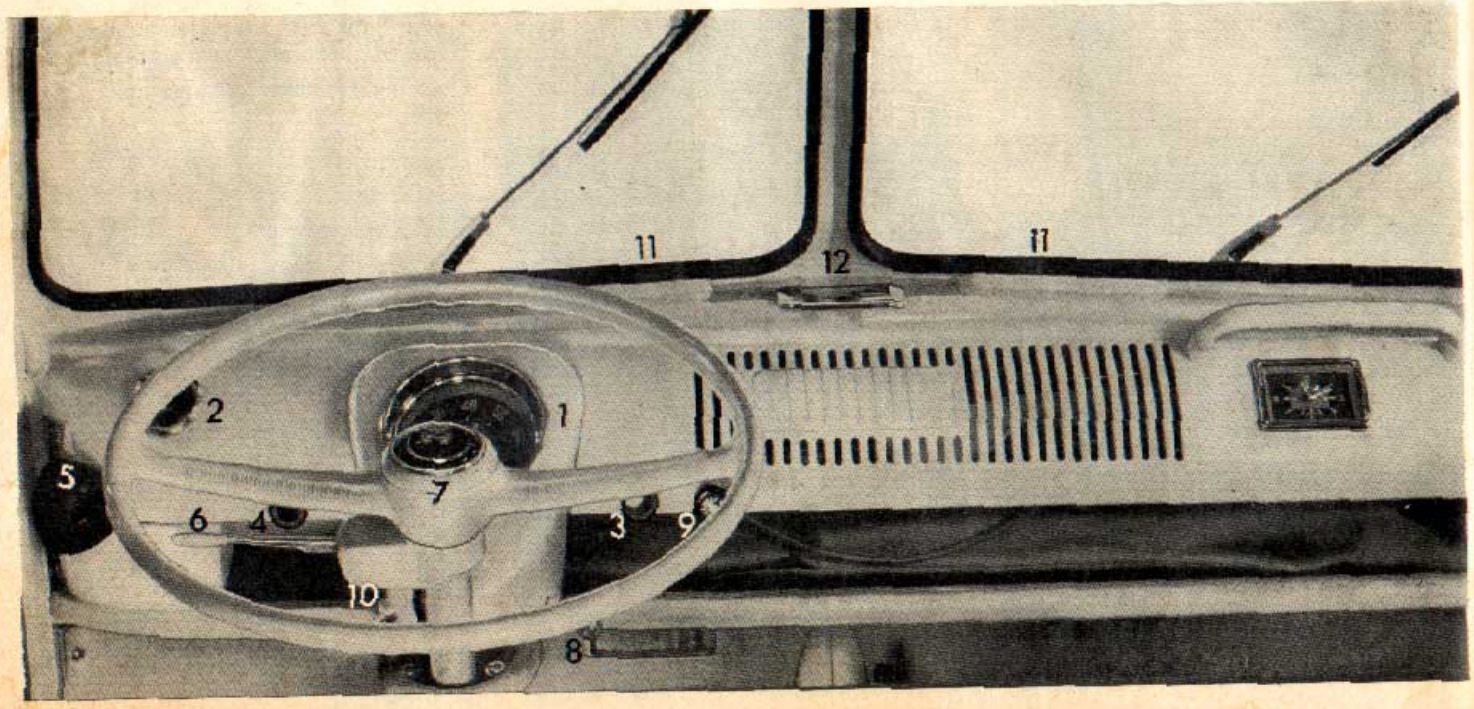
green	— oil pressure
red	— generator and cooling
blue	— headlight high beam
green arrows	— *turn signals*

2 - *Fuel gauge*

When the needle is on the "R" mark there is about 1 gallon (4 liters) of fuel left in the tank — time to refuel at the next opportunity.

3 - Light 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 headlights on. The headlight 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.

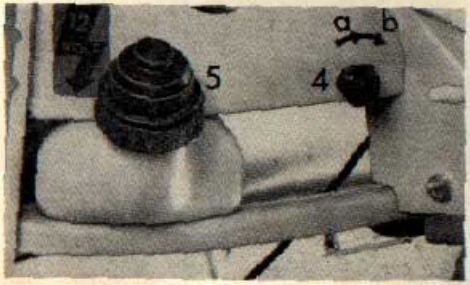
The instrument lights are switched on and the brightness controlled by turning the lighting switch (3).

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 about a quart.

It is advisable to add a cleaning solution, such as Volkswagen's Windshield Washer Anti-Freeze and Solvent, to the water to ensure that the windshield is cleaned quickly and properly.

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 headlight beams up and down — e.

7 - Horn

8 - Ignition starter switch

9 - Emergency blinker switch

If the vehicle is disabled or parked under emergency conditions, pull the switch to make all four turn signals blink at once. A warning light in the switch knob blinks when the system is turned on.

10 - Interior light switch

The light in the rear compartment is switched on with the switch on the left of the speedometer housing.

11 - Defroster vents

12 - Ashtrays

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

The ashtrays in the passenger compartment can be removed by sliding them upward out of the retaining frames.

Above you . . .

13 - Sun visors

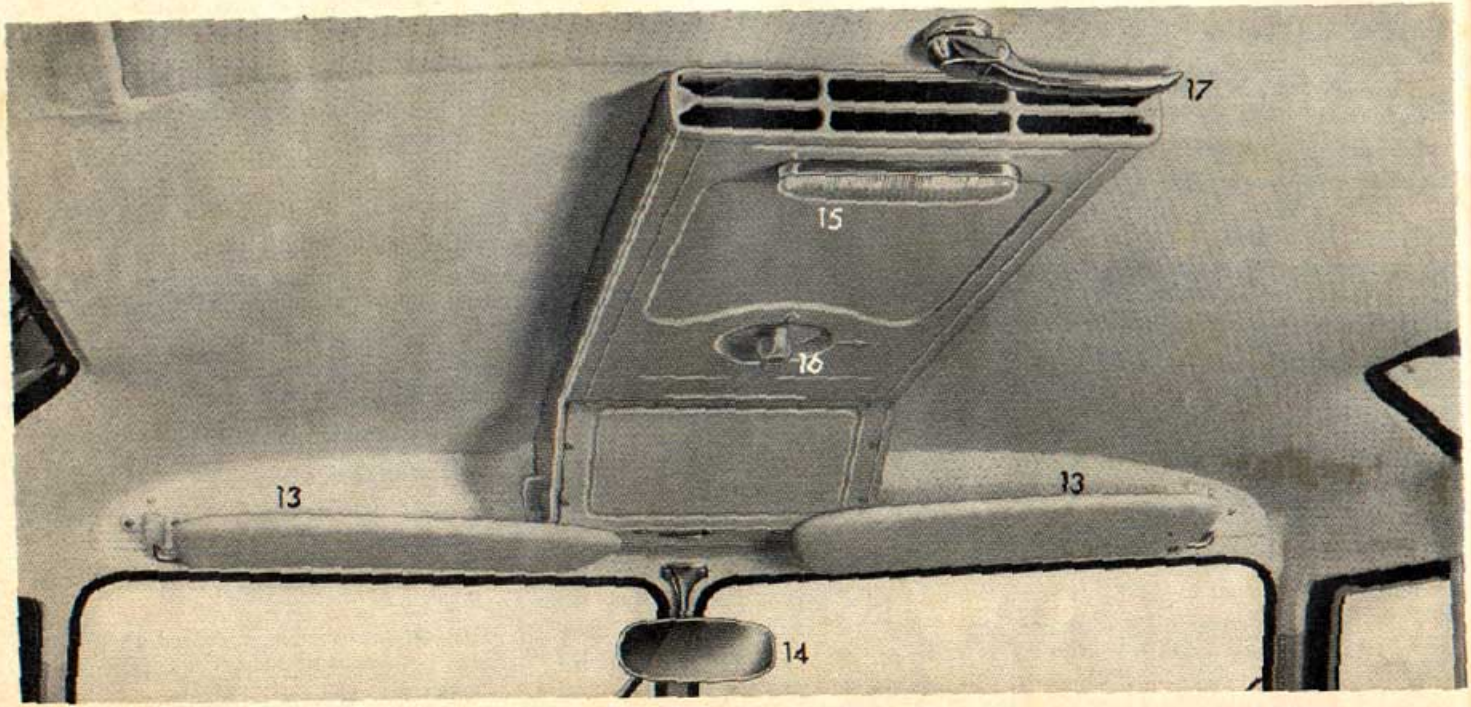
You can swing the visors toward the door windows to prevent dazzle from the side.

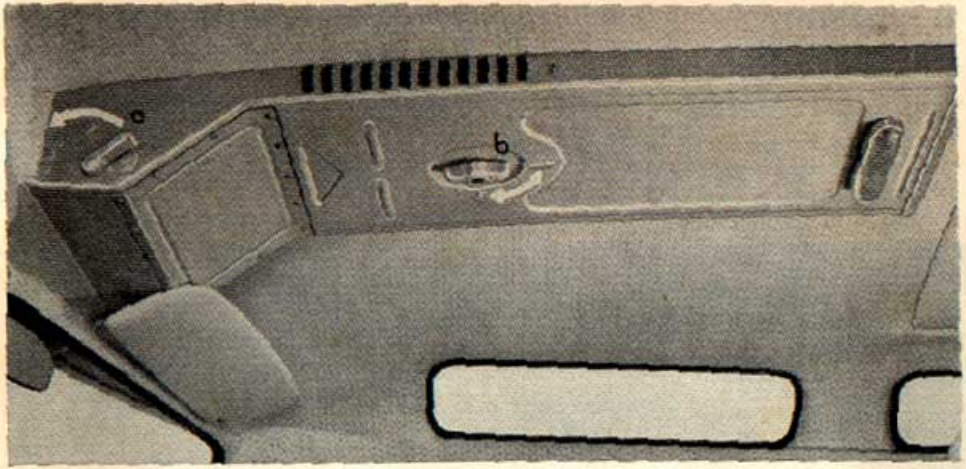
14 - Rear view mirrors

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

15 - Cab light

The cab light is turned on and off with the switch on the lamp itself.





16 - Fresh air ventilation

When the vehicle is in motion, the driver's cab and the passenger 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 positions between "open" and "closed".

The other small handle (b) controls the distribution of air between cab and passenger compartment. When the handle is pointing fore and aft, the air flows into the passenger 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.

17 - Sun roof (optional equipment)

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 . . .

18 - Clutch pedal

19 - Brake pedal

20 - Accelerator pedal

21 - Gearshift lever

22 - Handbrake

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

23 - Heating control knob

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

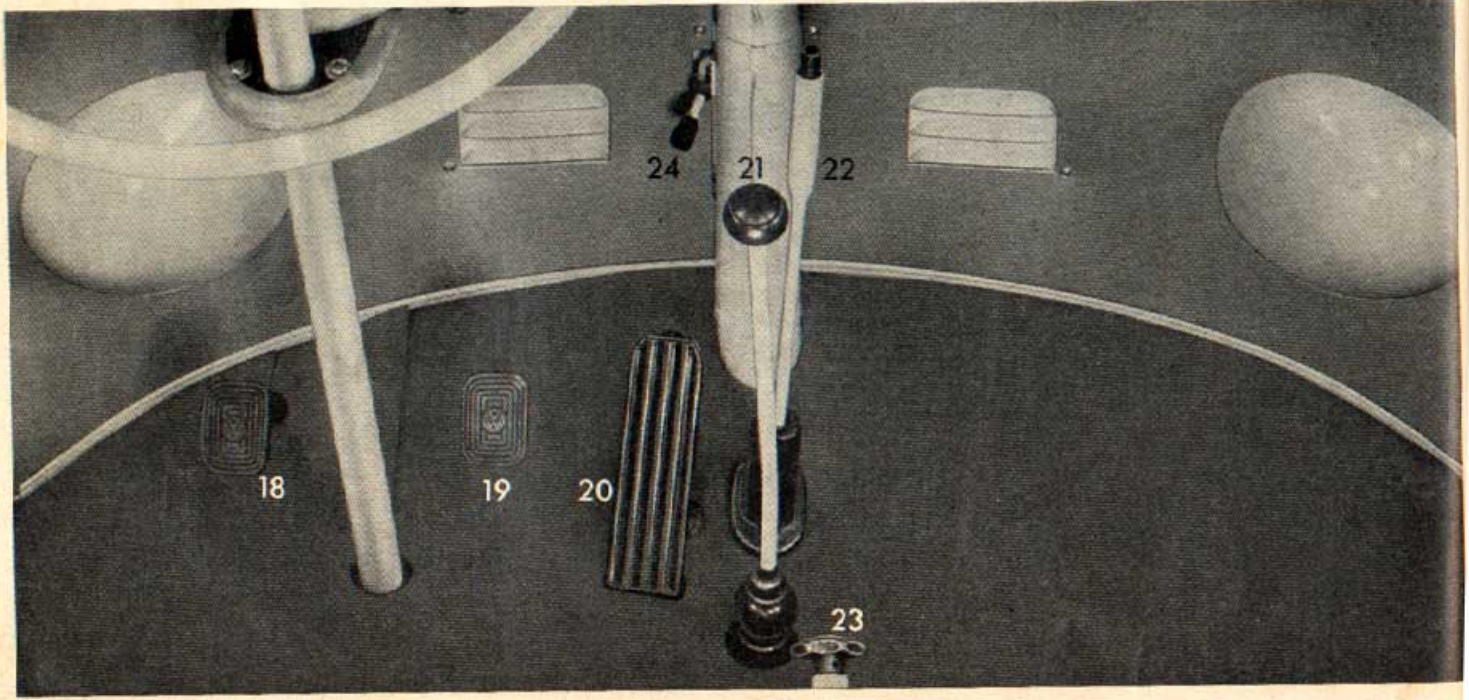
Turning to left — Heat on
Turning to right — Heat off

24 - 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.

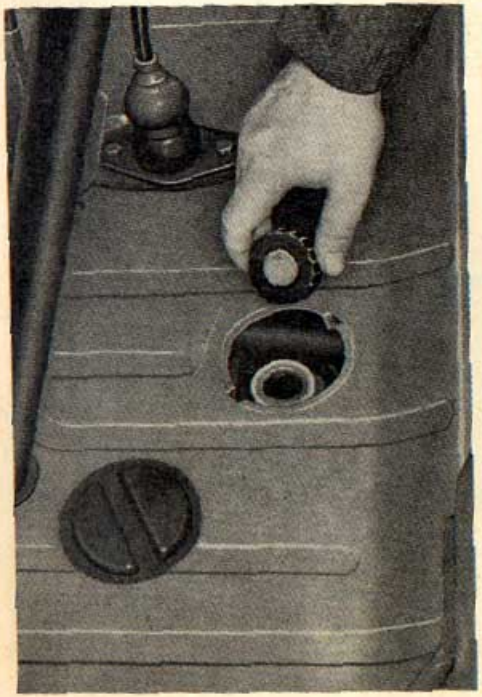
The heating will be more effective if you open one of the vent wings slightly, this will increase the warm air flow into the body interior.

The outlets for warm air in the passenger compartment are underneath the rear seat.

25 - 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.

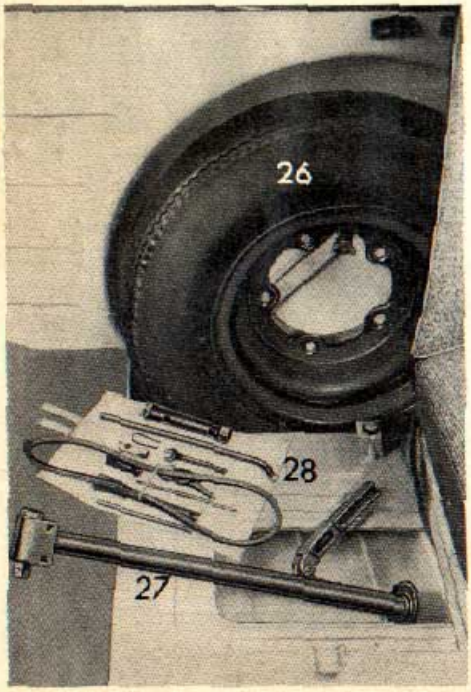
The container must be at least three quarters full. If this is not so, have your Authorized VW Dealer check the brake system.



Behind you . . .

26 - Spare wheel

Have the air pressure in the spare wheel checked from time to time. Inflate it to 40 psi (2.8 kg/cm²) *which is the highest pressure you* will normally require. The spare wheel is stowed behind the front seat. To remove it, unscrew the wing nut and take off securing bracket.



27 - Jack

The jack is kept in the compartment underneath the front seat. How it is used is described together with wheel changing on pages 24/25.

28 - Tools

The tool bag is also kept in this compartment. It contains:

1 fan belt

1 hub 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 socket wrench for fan pulley nut, wheel bolts and jack

1 bar for socket wrench

1 double-ended socket wrench and small bar for spark plugs

1 socket wrench 13 mm

29 - Fuel tank

The tank holds 10.6 US gallons (8.8 Imp. gallons). The choice of fuel is left entirely to you. The Volkswagen will run satisfactorily on all gasolines which fulfill the octane requirements of the engine (91 octane Regular).

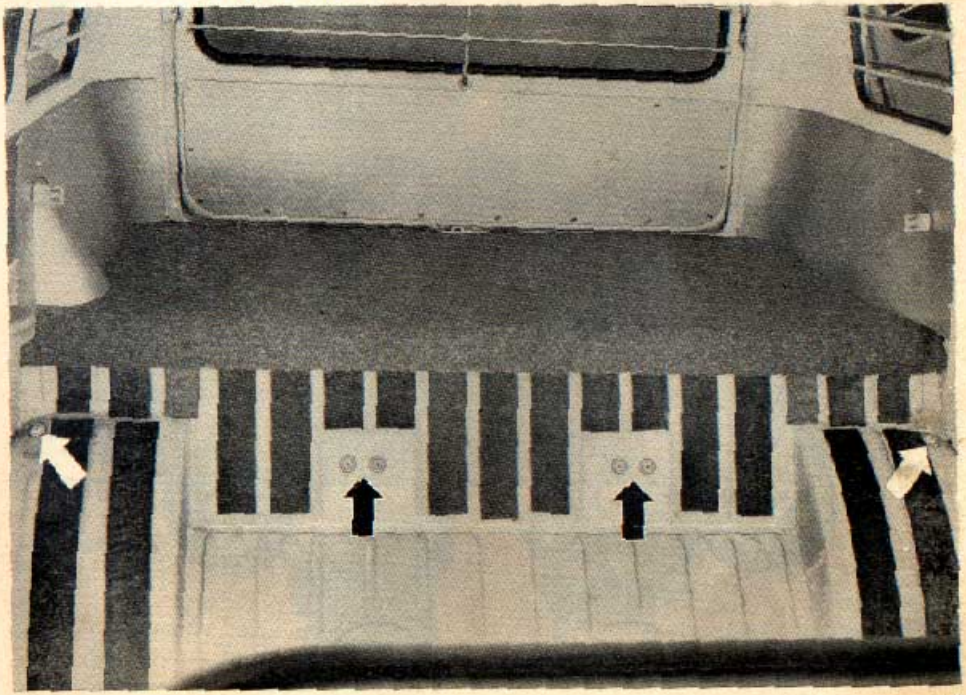
If regular fuels with adequate anti-knock qualities are not available, premium fuels should be used or mixed with the regular fuel.

Seat belts

The front seat has mounting points for two sets of seat belts. The anchor points are behind the seat

The center and rear seat benches have mounting points for three seat belts each. The anchor points for the center seat belts are in the floor under the rubber mat. The anchor points for the rear seat belts are behind the seat.

Your Authorized Volkswagen Dealer has seat belts in stock and can quickly install them.



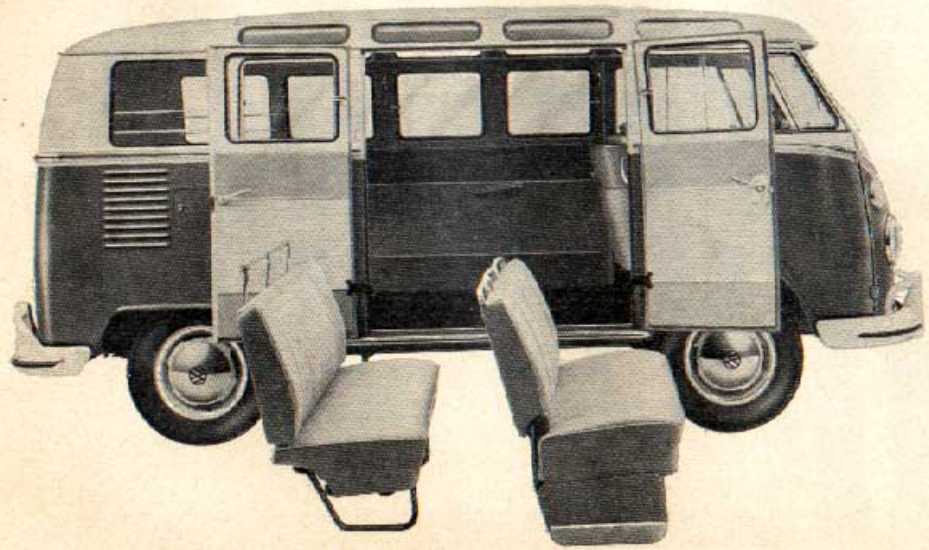
Make sure all your passengers are comfortable too

Reversing the middle seat. For long trips or for a car pool you can arrange the middle seat to face rearward, as in a club car. This is convenient for conversation or even a few rubbers of bridge. Follow the instructions below for unfastening the seat.

Want to carry a lot . . . Just take the seats out

Removing the middle seat. In the Volkswagen Station Wagon you can remove the middle seat to load cargo by unfastening the hexagonal screws holding it to the floor. You will need the socket wrench from the tool kit.

Removing the rear seat. Unfasten the hexagonal screws which hold the brackets from underneath and remove the seat.

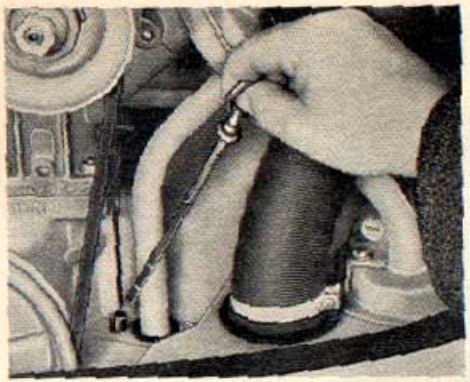


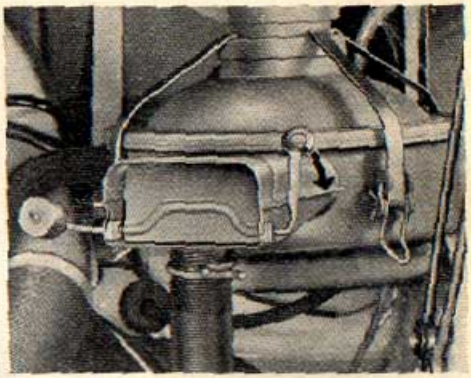
Now you know your vehicle fairly well.

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

Before moving off, check . . .

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





The fuel in the tank, *when full, is sufficient for about 210 miles.*

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

The lights include head lights, rear lights, license plate light, turn signals, back-up 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 *faster than usual. The brake lights only work when the brake pedal* is depressed, the back-up lights only when reverse gear is engaged.

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 so the dipstick reading will be accurate. Do not check the oil immediately after stopping the engine. Wait at least 5 minutes to give the oil in the engine time to drain down into the bottom of the crankcase.

Always try to use the same brand of HD oil. Further details about the viscosity of the oil to be used are given on page 39.

Tire pressures:

Front:	28 psi (2.0 kg/cm²)
Rear:	
up to ¾ payload	33 psi (2.3 kg/cm²)
with full load	40 psi (2.8 kg/cm²)
Spare wheel	40 psi (2.8 kg/cm²)

Two more important points:

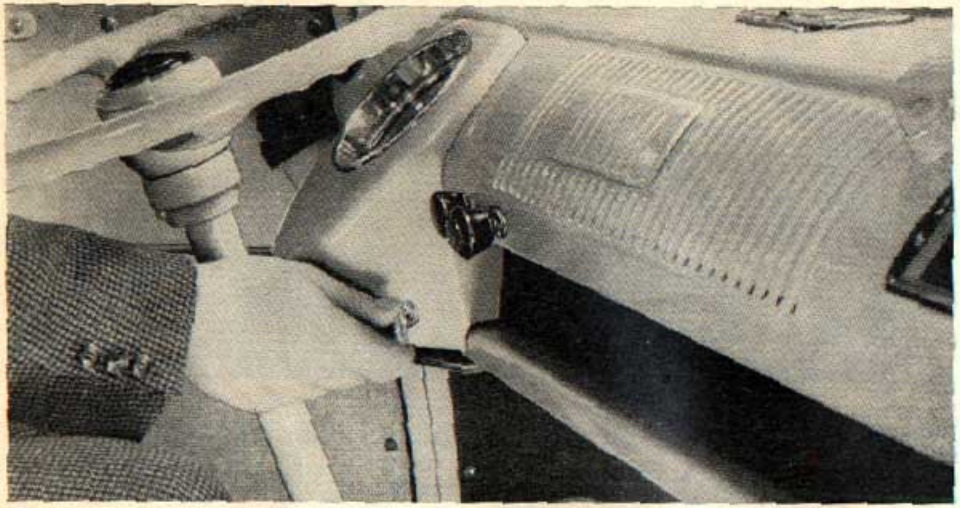
1. *The carburetor of your* Volkswagen should draw in preheated air at temperatures below 50° F (10° C). This helps to keep down fuel consumption in cold weather and prevent carburetor icing which sometimes occurs when air humidity is high.

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 50° F (10° C), the flap should be fixed open by jamming *the lever under the ridge on the intake pipe.*

2. If the vehicle is used mostly 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 44.**

Starting the engine . . .



Before turning the ignition key, make sure that the gearshift 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 *or 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.** When the weather is very cold, the engine *may turn* over slowly during starting. In this case depress the clutch while cranking; if it turns over faster, hold the clutch down until the engine starts. When starting without depressing the clutch, *be sure* the handbrake is on and the gearshift in neutral.

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* immediately. 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 the non-repeat lock in the switch prevents the starter from being operated when the engine is running and thus being damaged.

The warning lights in the speedometer which come on when the ignition is switched on, go out when the engine starts. Stop at once if one of these lights comes on when driving:

Red warning light for generator and cooling

Check the belt that drives the generator. If this belt breaks, the engine cooling fan also stops working. The proper way to fit a new belt is described on page 26.

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

Green warning light for oil pressure

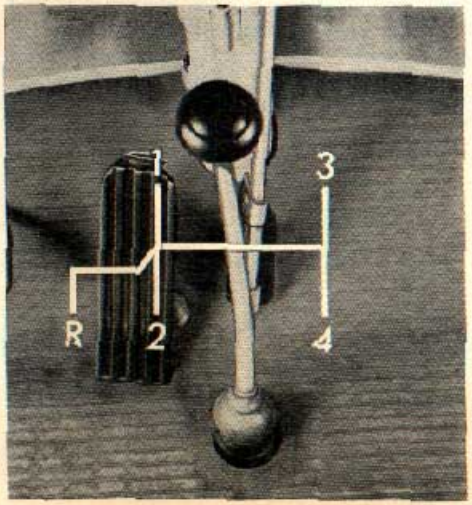
If this warning light comes on when driving the flow of lubrication oil in the engine may be interrupted. Check the oil level first. Should the cause of the trouble be elsewhere, contact your nearest Authorized Volkswagen Dealer.

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 . . . 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:

1st gear	0—12 mph (0— 20 kph)
2nd gear	6—25 mph (10— 40 kph)
3rd gear	12—45 mph (20— 70 kph)
4th gear	25—65 mph (40—105 kph)



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 raises fuel consumption 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 and increased tire and brake lining wear.

You can drive very economically between:

6 and 20 mph (10—30 kph) in 2nd gear
12 and 30 mph (20—50 kph) in 3rd gear
25 and 45 mph (40—75 kph) in 4th gear

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 gears. He always depresses the clutch fully when changing gears, he changes down into the appropriate gear in 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 excellent **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 (100 kph) for example it is four times longer than at 30 mph (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 tire adhesion 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 the preceding vehicle, particularly when roads are wet and slippery.

Always set the handbrake after parking your car. On steep hills turn the front wheels toward the curb.

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 Volkswagen 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.

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

M+S tires with special heavy treads give good traction 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. Check your state laws before using spiked tires.

The specific characteristics of winter tires can be improved by raising the tire pressures to 3 psi (0.2 kg/cm²) 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. In addition, under these conditions, M+S tires wear rapidly, particularly at high speeds.

Snow chains can be fitted to regular and winter tires on the rear wheels only. Only thin chains which do not protrude from the tire tread and inner side wall more than ½ inch including tensioner, are suitable. When driving over long stretches of road which are free of snow, the chains should be removed, because they serve no useful purpose and 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 to a thinner grade of engine oil. Details of the various oils to be used are given on page 39.

If you drive mostly short distances and in city traffic, especially in the winter, we recommend that you have the engine oil changed at shorter intervals, say every 1500 miles (2500 km). At other times, these additional changes are unnecessary and uneconomical.

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

Transmission oil of SAE 90 grade can generally be used all year round. Only in countries with arctic climates is it necessary to use the thinner SAE 80 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. Current consumption is higher when starting and the lights are on longer. A really cold battery which may not be fully charged has only a fraction of the capacity that a battery at normal temperature has, and this might not be enough to start a cold engine. If the car is only driven short distances and in city traffic, the battery may have to 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 .028 in. (0.7 mm), but when the weather is very cold, the gap can be temporarily reduced to .016—.020 in. (0.4—0.5 mm) to facilitate starting.

Door locks can freeze 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 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.

Ice on windows can be removed quickly by using Volkswagen's Spray De-Icer — Part No. ZVW 241 113.

A clean smart vehicle looks better

We have provided your vehicle with enamel 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 enamel 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 at work 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 Authorized Volkswagen Dealership stocks car cleaning materials. These materials have been tested by us and found to give the best results. These materials are listed on page 22.

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 downward. 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. Afterward, rinse all traces of the shampoo off well with clear water and then wipe 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 wipe 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. Afterward, the area 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.

Afterward, the paintwork should be washed, rinsed and wiped dry with a chamois.

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 Volkswagen's Chrome Cleaner and Protection.

The windows can be cleaned with a sponge and clear water. Always use a clean chamois to dry the windows. This chamois 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 to clean the wiper blades.

The windshield wiper blades should be taken off from time to time and cleaned with a hard brush and alcohol 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 solution or Volkswagen's All Purpose Cleaner. 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 benzine and then rinsing well with a lukewarm soap solution.

Car care materials for the Volkswagen

Since beauty is "skin-deep", your Volkswagen has been given a pretty deep skin. Four layers, as a matter of fact. (Each coat of enamel is sprayed on, sanded and baked individually.) The items listed below will help you preserve the built-in beauty of your Volkswagen. Compounded especially for use on your VW, they are available at your local Authorized Volkswagen Dealer. Detailed instructions on how to use the various products are imprinted on the individual containers.

Application	Volkswagen Product
Car Washing, Convertible Top Cleaning, Upholstery Cleaning, Whitewall Tire Cleaning.	All Purpose Cleaner-ZVW 243 101.
Paint Polishing and Paint Waxing	Combination Car Cleaner and Wax-ZVW 241 109.
Paint Polishing, Paint Waxing, Care and Cleaning of Chrome Parts.	Paint Polish — 000 096 001. Paint Preservative — 000 096 011. Chrome Cleaner and Protection — 000 096 061.
Windshield Cleaning.	Windshield Washer Anti-Freeze & Solvent — ZVW 241 101.
Paint Touch up.	Touch up Paint, all colors.

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 Volkswagen's All Purpose Cleaner. Use only a dry foam cleaner on the leatherette of the seats and backrests because the material used for these parts is air-permeable and liquid cleaners would penetrate into the textile backing. 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 or alcohol. 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. 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 mold and damp stains inside the vehicle.

The driver's seat. If the driver's seat becomes hard to slide, the runners should be lubed lightly at top and bottom after being cleaned with a cloth. The seat can be removed, to do this push 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 or silicone spray 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 imbedded material.

2 - Keep oil and gasoline away from the tires.

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

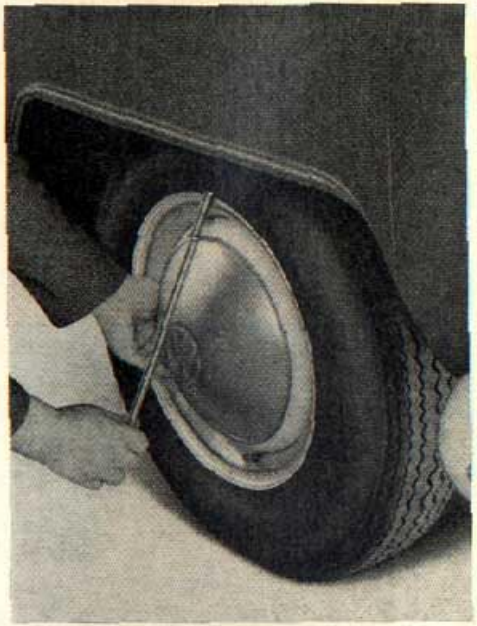
4 - Replace missing valve dust caps as soon as possible.

Tires should be replaced when the tread depth is only 1/16 in. (1.6 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 Authorized Volkswagen Dealer.

Just in case . . .

you have to carry out a repair yourself, we have included some information on the next few pages which should help you.

All other repairs should always be performed by an Authorized Volkswagen Dealer. The Volkswagen service organization offers you a wide-spread network of Authorized Volkswagen Dealerships 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 hub 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 socket under body and turn hexagon at top of jack until base touches ground.

Lift vehicle by turning hexagon with socket wrench 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.

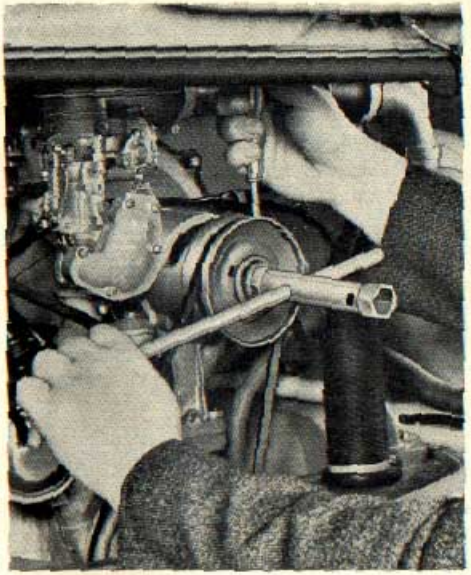
Insert one bolt and tighten it until the wheel can be swung round to align the other holes with the holes in the brake drum.

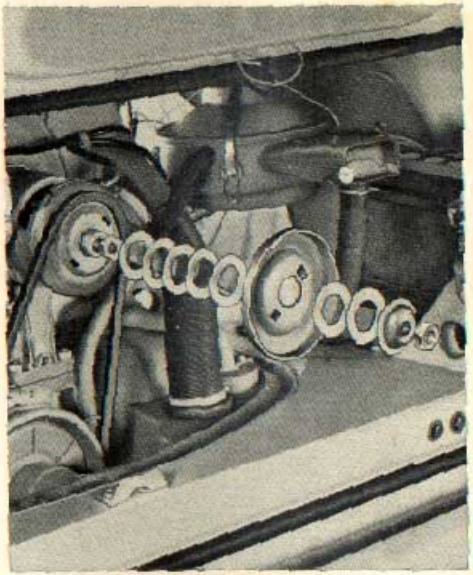
Insert remaining bolts.

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 diagonally.

Install hub caps with a blow of the hand.



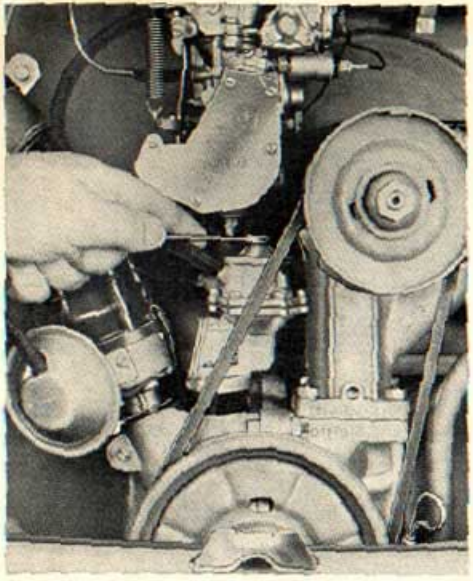


Adjusting or replacing the fan belt

The fan belt tension is correct when the belt can be pressed inward about .6 in. (1.5 cm) at the center. The belt must not be too tight or too slack. A new belt may stretch slightly at first so should be checked after about 300 miles (500 km) 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. Extra washers are stored on the outside of the pulley half.



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.

Adjusting idling

The carburetor is tested at the factory and properly adjusted to the engine. Do not alter this adjustment by exchanging the jets for other than the prescribed sizes. This would be detrimental under normal operating conditions, and may result in hard starting, excessive fuel consumption or unsatisfactory engine performance.

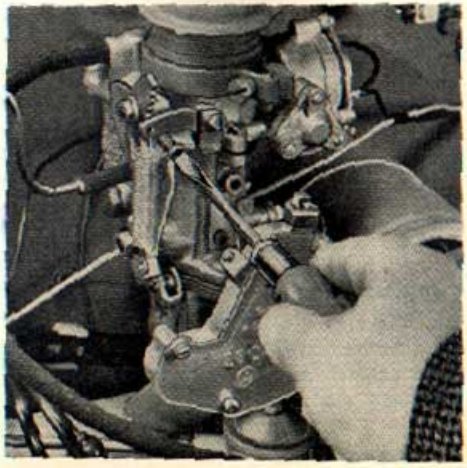
Only the idle setting may require occasional adjustment. Before attempting to adjust the carburetor, make sure the engine is at normal operating temperature.

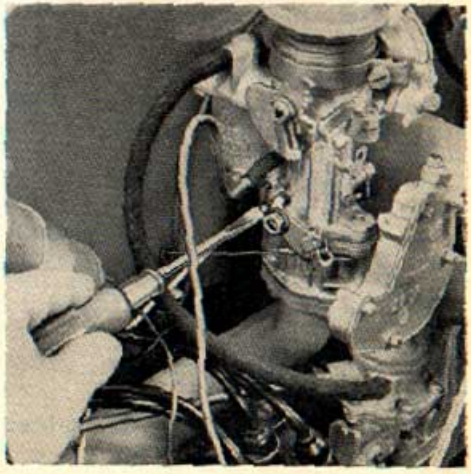
Also check that the idle adjustment screw is on the lowest step of the fast idle cam in the automatic choke.

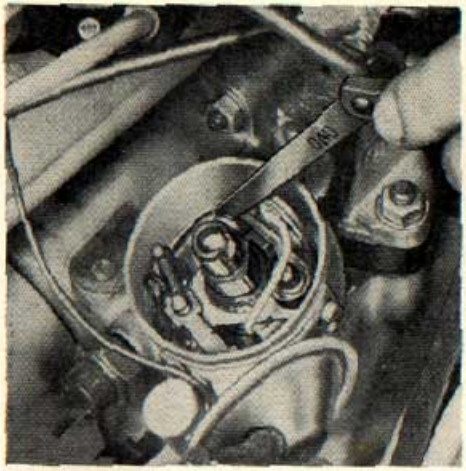
1. Turn the idling adjusting screw (1) in or out until normal idling speed is attained (about 700—800 rpm).

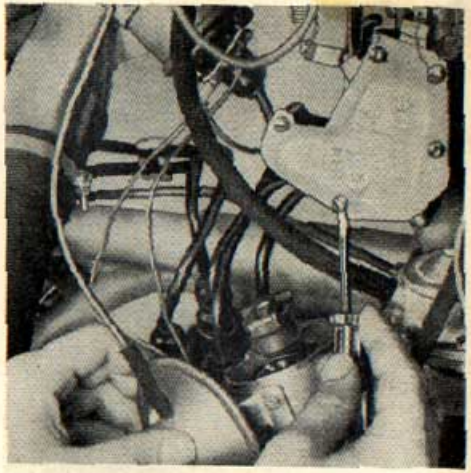
2. Gradually turn the volume control screw (2) to the right until the idling speed drops, then back it off a 1/4 to 1/3 turn to the left.

3. Finally re-adjust the idling speed.









Ignition timing

Particular attention must be paid to correct ignition timing. In many cases poor performance, high fuel consumption and even damage to the engine can be the result of incorrect ignition setting. The ignition must not be advanced arbitrarily.

Before setting the ignition timing, the breaker contact point gap must be checked. The ignition timing must be set to 7.5° before TDC when the engine is cold.

Adjusting point gap

Remove distributor cap and rotor.

Turn engine until the breaker arm is fully lifted by a cam lobe.

Loosen breaker point screw.

Place a screwdriver between the two lugs on the breaker plate and the slot in the fixed point and adjust points gap to .016 in. (0.4 mm).

Tighten screw and install rotor.

After adjusting contacts, adjust the ignition timing.

Setting the ignition timing

Turn the engine clockwise until the left hand mark on the crankshaft pulley (7.5° before top dead center) is aligned with the crankcase joint and the rotor arm is pointing to the Number 1 cylinder mark on the edge of the distributor housing.

Loosen distributor bracket clamp bolt.

Connect one lead of 12 volt test lamp to the primary terminal on the distributor and the other to ground.

Switch on ignition.

Turn distributor clockwise until the points are closed and then turn counter-clockwise slowly until the points just begin to open and the test lamp lights up.

Tighten clamp bolt.

The timing is correct if the test lamp lights up at the moment the left hand mark aligns with the crankcase joint when the engine is turned slowly clockwise. The engine should be turned back about 1/6 turn beforehand to take up the clearance in the distributor drive.

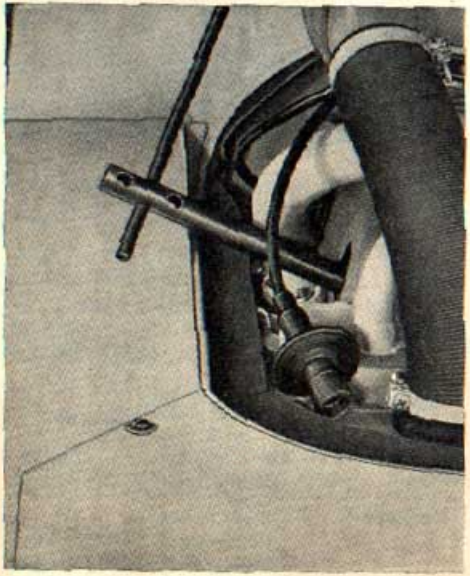
Removing and installing spark plugs

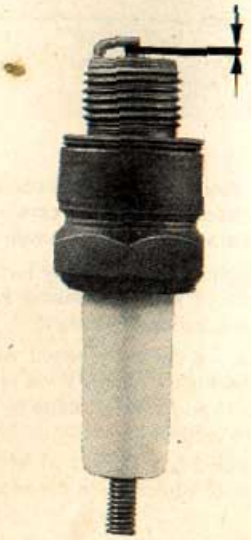
Pull connector off and screw plug out with socket wrench and bar.

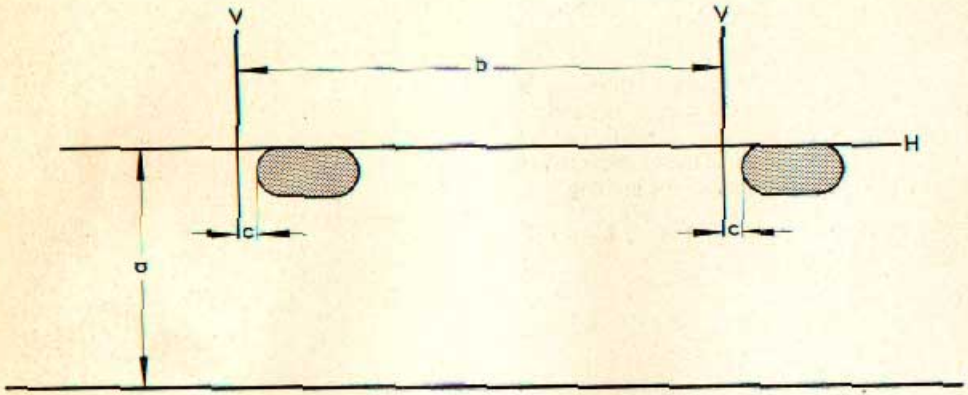
Dirty plugs should be cleaned with a sand blaster, but in an emergency the carbon can be removed with a chip of wood. Do not use a wire brush. The pluge should also be clean and dry on the outside as well, in order to avoid shorting and tracking. The gap can be set by bending the outside electrode. The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

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

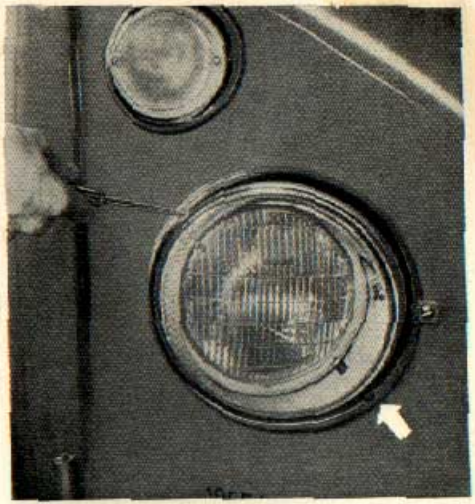
New plugs should be installed every 12,000 miles (20 000 km).







a = Height of headlight centers from ground
b = Distance between headlights = 39½ in.
c = 2 in.



Headlight adjustment

It is best to check the headlight alignment with a regulation screen or *aiming device. If none* is available, proceed as follows:

Adjust tires to correct pressures and park vehicle on level surface squarely facing a wall or screen 25 feet in front of the headlights. The drivers seat must be loaded with one person or a weight of 154 lbs. (70 kg).

Measure height (a) of center of headlights from ground and draw a horizontal line (H) on screen at this height the full width of the *vehicle.*

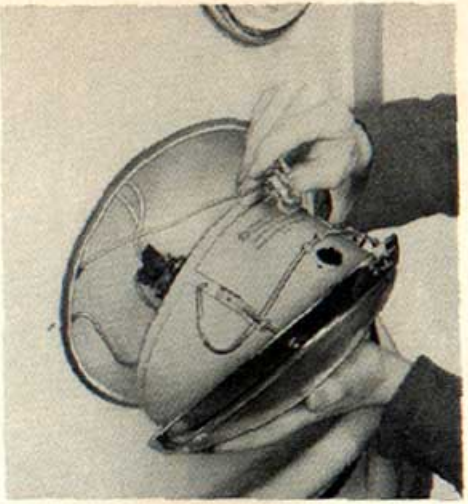
Opposite the center of each headlight, draw (V) vertical lines intersecting the horizontal. These lines should be 39½ inches apart. *Drawing a vertical line for the center of the* vehicle might help aligning vehicle with screen.

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

The headlights are correctly aimed when the top edge of 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.

Check with your State Bureau of Motor Ve*hicles for variations from these dimensions.*

Adjustment	Right headlamp
Vertical	upper screw: clockwise - lowers counter-clockwise - raises
Horizontal	lower screw: clockwise - to right counter-clockwise - to left
Adjustment	**Left headlamp**
Vertical	lower screw: clockwise - raises counter-clockwise - lowers
Horizontal	upper screw: clockwise - to left counter-clockwise - to right



Bulb replacement

Sealed-Beam

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 front panel are located correctly.

Front turn signal bulb

Remove two screws.

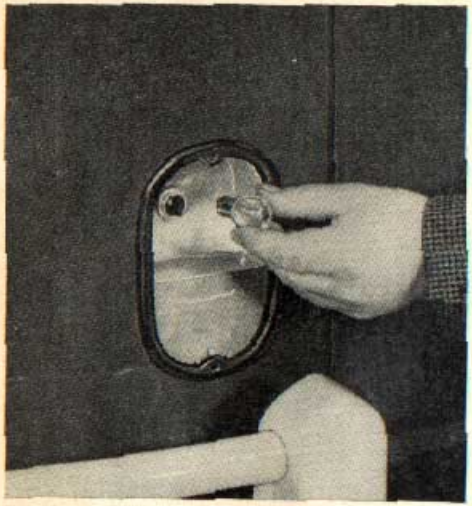
Take lens and gaskets off.

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/stop/tail light bulb

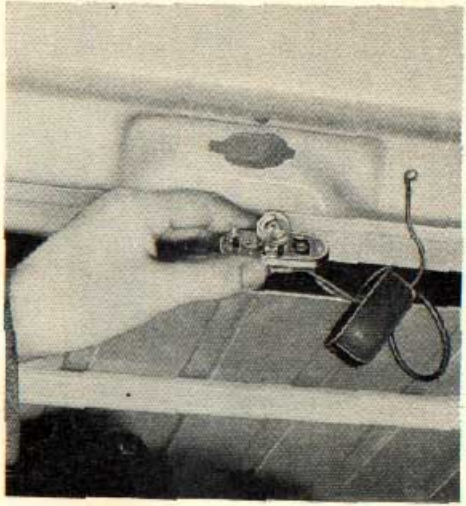
Remove two Phillips screws and take lens off.

Press bulb in lightly, turn and take out.

Insert new bulb.

When installing lens, ensure that gasket is located properly.

Tighten lens securing screws evenly but do not overtighten.



License plate light bulb

Open engine compartment lid.

Pull off the rubber cap.

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.

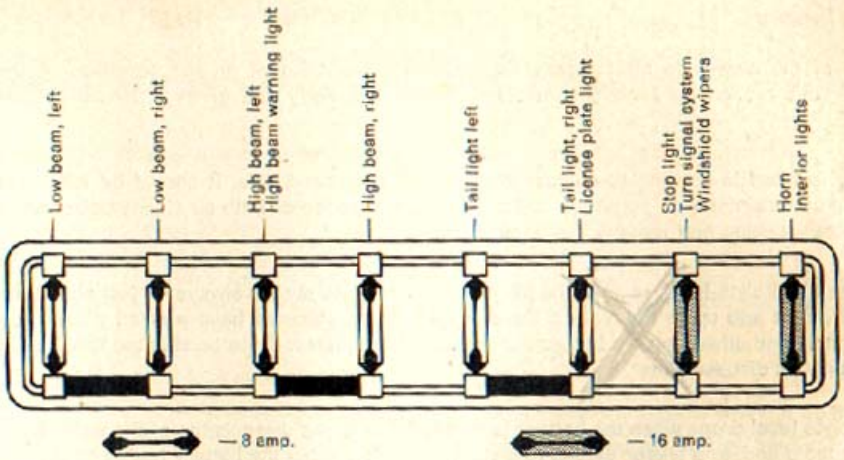
Back-up light bulb

Unscrew the two lens securing screws until the rim and lens can be taken off.

Press bulb lightly into reflector, turn and take out.

Install new bulb.

When fitting rim, ensure that rubber seal is located properly.



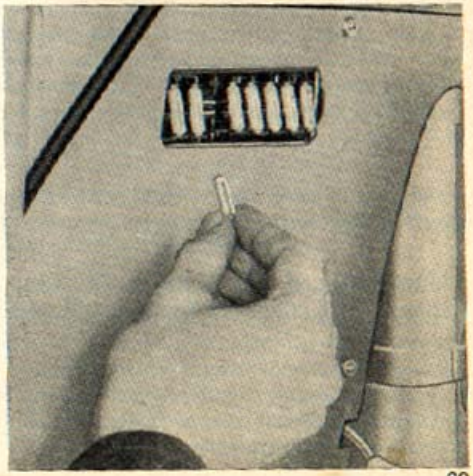
US replacement bulbs

Headlight	- 6012
Parking Light	- 67
Front Turn Signal	- 1073
Tail / Stop / Rear Turn Signal	- 1034
License Plate Light	- 89
Back-up Light	- 1073

Replacing fuses

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

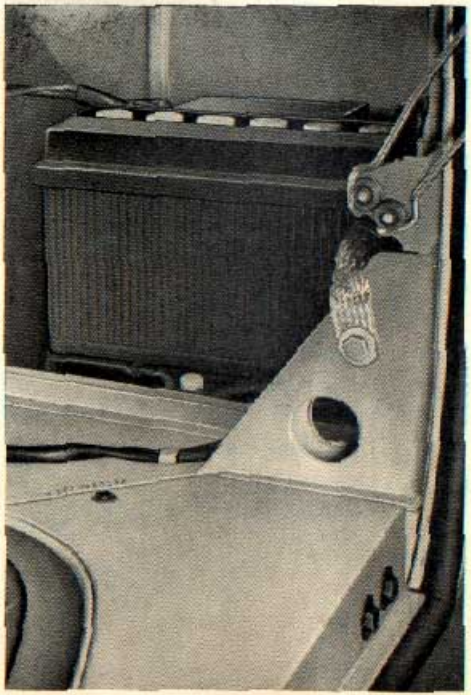
When a fuse blows it is not sufficient to merely replace it with a new fuse. The cause of the short circuit or overload must be established. On no account should fuses be patched up with tin foil or wire as this can cause serious damage elsewhere in the electrical system. It is advisable to always carry a few spare fuses on the vehicle. 16 ampere fuses for brake lights, interior lights, turn signal, wipers and horn and 8 ampere fuses for all other electrical items.



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 electrolyte level, remove the plugs. The electrolyte should always be just above 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 electrolyte 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 operated under different conditions. As a general rule, the battery electrolyte 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 electrolyte 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 store your vehicle for a prolonged period, it is advisable to take the battery to an Authorized Volkswagen Dealer. 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.

Here is what to do when trouble troubles you

Your Volkswagen should repay you with trouble-free driving if it receives regular preventive maintenance.

Should you ever encounter difficulty starting your engine or have trouble on the road there are a few simple repairs which you can make to get your VW going again. Locate the problem and probable cause of your trouble in the guide on the following pages and follow the directions on what to do.

If the trouble is serious or you are uncertain as to its origin be sure to see an Authorized Volkswagen Dealer as soon as possible.

Problem	Probable cause	What to do
VW will not start: engine will not turn over or turns over too slowly.	1. Run down or dead battery	1. Push to start the vehicle (turn on ignition, put in 3rd gear at a speed of approximately 15 mph, release clutch slowly). Have battery charged and cause of high current consumption checked.
	2. Loose connection A. At battery B. At starter C. At ignition switch under cover on dashboard D. At light switch or fuse box	2. Make sure that all connections are tight. A. Check both cable connections on battery and grounded end of ground strap. B. Check connections at solenoid, mounted on starter, under right rear of vehicle. C. Check push-on connectors for tightness. D. Check push-on connectors at back of light switch and fuse box.
	3. Starter defective	3. Have vehicle started by pushing and take it to nearest Authorized VW Dealer.
VW will not start: engine turns over.	4. Loose connection in ignition system	4. Check for loose connections at coil, distributor and spark plugs.
	5. Loose connection in primary circuit to coil	5. Turn on ignition. Remove thin black cable from ignition coil, hold it by insulation and strike it against blower housing or other ground, **being careful of gasoline and its fumes.** If no spark, electricity does not reach coil from battery. Check push-on connectors under dashboard for tightness, and connectors at fuse box. If still no spark see the nearest Authorized Volkswagen Dealer.

Problem	Probable cause	What to do
VW will not start: engine turns over.	6. If spark at black coil cable, trouble is in ignition system	6. Check in this sequence: A. Turn on ignition, remove distributor cap, and turn engine by the V-belt until ignition points are closed. Open and close ignition points several times with a non-metal object. A visible and audible spark will appear between the points. If this is not the case, the cables on ignition coil and distributor should be checked for tightness. Clean and adjust distributor points (page 30). If even then no spark is visible, se your nearest Authorized VW Dealer. B. If spark appears at points, remove high tension wire from center of distributor cap and hold it against a metal part of the engine at a distance of approximately ¼ in. Switch on ignition and turn over engine or open ignition points as described under A. A strong blue spark must appear. If this is not the case, see your Authorized VW Dealer. C. If a spark appears at high tension cable, the distributor cap should be cleaned inside and outside. Reconnect high tension cable. Remove all spark plugs (page 31). If plugs are clean and dry, reconnect ignition cables to spark plugs and bring spark plugs in connection with metal (ground). **Hold cable with dry piece of cloth to avoid shock.** A spark should appear between spark plug electrodes when the engine is turned over. If not, clean and dry ignition cables and spark plug connectors and check that ignition cables are tight in distributor cap and plug connectors. See your Authorized VW Dealer if the above steps do not ensure proper ignition. D. Dirty or wet spark plugs should be cleaned and dried. Install new plugs if necessary. Unburned gasoline on plug electrodes points to excessive fuel supply.
	7. If spark is fairly good at plugs, trouble is most likely in fuel system A. Caused by improper starting procedure. If the gas pedal is	7. Check fuel system in the following sequence: A. Depress gas pedal completely and operate starter for a prolonged period. If engine does not start, remove and dry spark plugs, turn over engine with plugs removed for approximately 30 seconds. Reinstall plugs and start engine as described on page 18.

Problem	Probable cause	What to do
VW will not start: engine turns over.	depressed too often, the accelerator pump of the carburetor injects too much gasoline	
	B. Carburetor may be flooded, float or needle valve may be sticking	B. Tap around outside of carburetor with wooden or plastic tool handle. Wait a few minutes and try starting again as described at 7 A.
Engine stalls shortly after starting	8. Poor fuel supply	8. See paragraph 11 through 13.
	9. Automatic choke does not open, excessive fuel supply	9. Remove intake elbow from carburetor. Check whether choke valve is in vertical position after ignition has been switched on for 2—5 minutes (depending on outside temperature). The cover for choke unit must be hot. If choke valve is binding in a closed position, contact your nearest Authorized VW Dealer.
Engine stalls while vehicle is driven	10. Defect in ignition system	10. See paragraph 4 through 6.
	11. Fuel supply is exhausted	11. Check whether any gasoline is left in tank.
	12. Fuel filter in pump may be clogged	12. Disconnect intake fuel line from fuel pump and plug up line. After removing the pump cover, the fuel filter can be taken out for cleaning (see page 29).
	13. Gasoline may be contaminated by water, or dirt	13. See your VW dealer for cleaning of all components of the fuel system.
Green warning light comes on while you are driving	14. If green light goes on, the oil pressure is too low	14. Stop at once and check oil level. Add oil as necessary. If the oil level is sufficient and green light goes on during driving, contact the nearest Authorized VW Dealer before driving on.
Red warning light comes on while you are driving	15. If red light goes on, V belt may be torn	15. Do not continue driving because engine cooling fan is no longer working. Fit spare belt (see page 28).
	16. Generator does not charge	16. Switch off all unnecessary electrical equipment (radio, etc.). Drive to nearest VW dealer as otherwise the battery will soon get run down.

Proper lubrication

means regular and careful lubrication. The list on page 54 shows you at which intervals the various lubrication points require your attention.

Engine

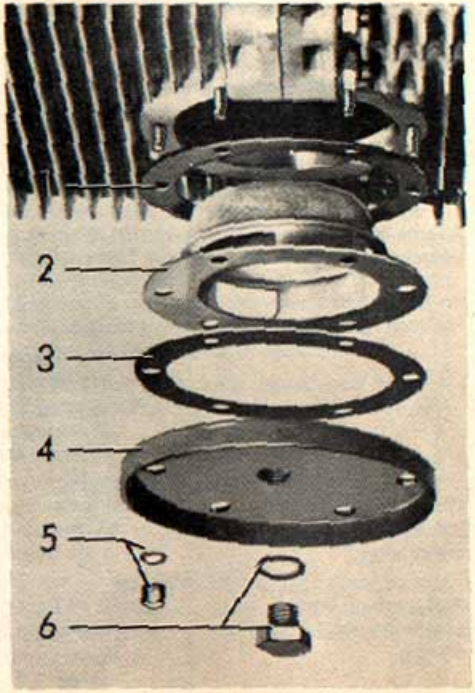
Regular oil changes are necessary even if the very best brand of HD oil is used because dirty oil in the engine means increased wear and reduces service life.

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 be always renewed. The engine is then filled with 5.3 US pints (4.4 Imp. pints) of HD oil.

Due to the detergent properties of the HD oil, the fresh oil will look very dark after the vehicle has been running for only 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 3000 miles (5000 km). We only recommend more frequent oil changes — every 1500 miles (2500 km) — 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 —13° F (—25° C) the oil should be changed every 750 miles (1250 km).

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 300 miles (500 km) oil change and stick to this brand on all occasions. Should you have any doubts at all, your Authorized VW Dealer will be pleased to advise you.

The classification of oil into various viscosity grades is shown by the designation 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 usually requires only two different viscosity grades which are used, according to season of year, as follows:

SAE 30 — **In warm seasons and all year round in countries with hot climates.**

SAE 20 W/20 — **In the winter.**

or

SAE 10 W*) — In areas where the average temperature is below 5° F (—15° C).

SAE 5 W*) — In countries with arctic climates and temperatures below —13° F (—25° C).

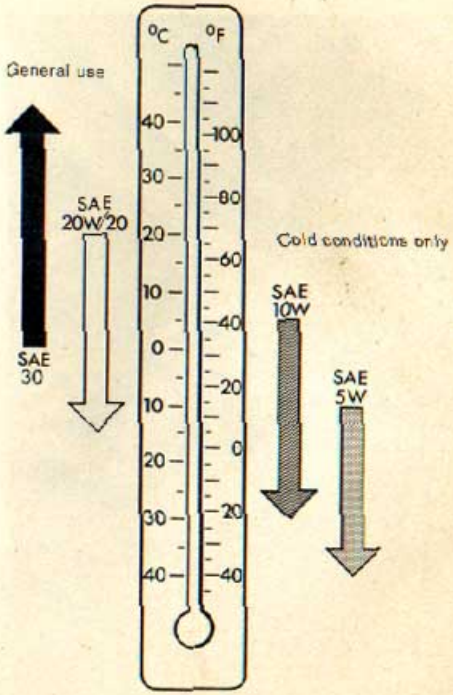
*) Avoid driving at high speeds for long periods when using SAE 10 W oil and the outside temperature is above 32° F (0° C) or if using SAE 5 W oil when the temperature is above 5° F (—15° C).

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 all right 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. The same brand of oil must be used, however.

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.

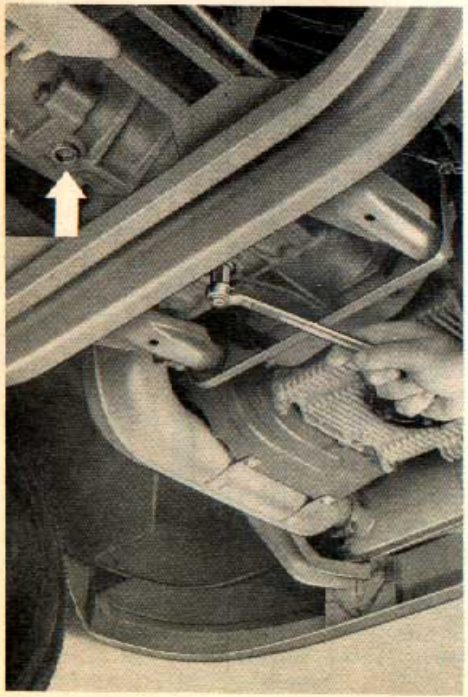
Temperature ranges of SAE grades

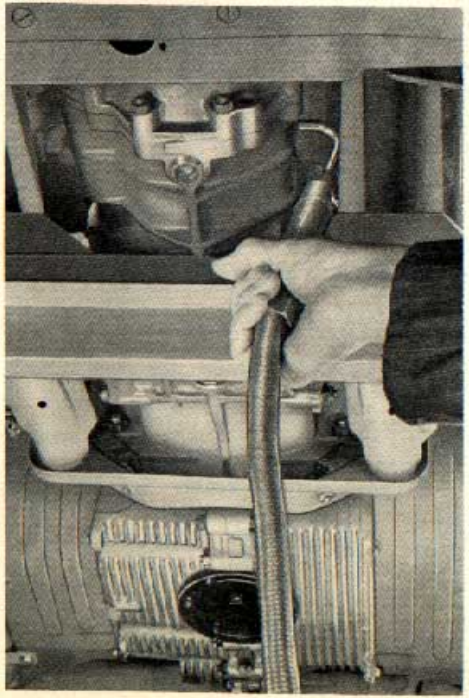


Transmission

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 5.3 pints of good quality SAE 90 hypoid oil put in.

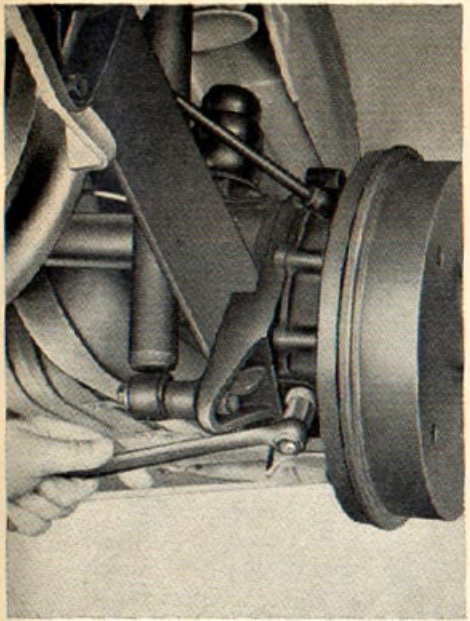


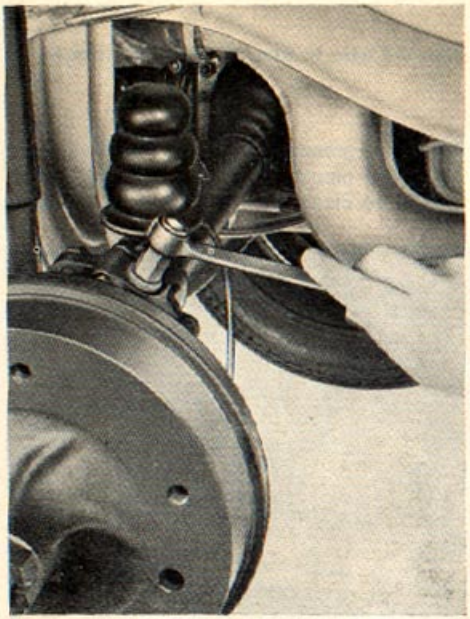


The oil sometimes runs into the transmission housing very slowly. If one attempts to put the oil in too quickly it may overflow and give the impression that the housing is already full although actually only about 2—3 pints have been put in. It is essential to the service life and silent running of the rear axle that the correct amout of oil is used in the transmission.

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

Additives should not be used with 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 .53 pint of SAE 90 hypoid transmission oil put in each side.

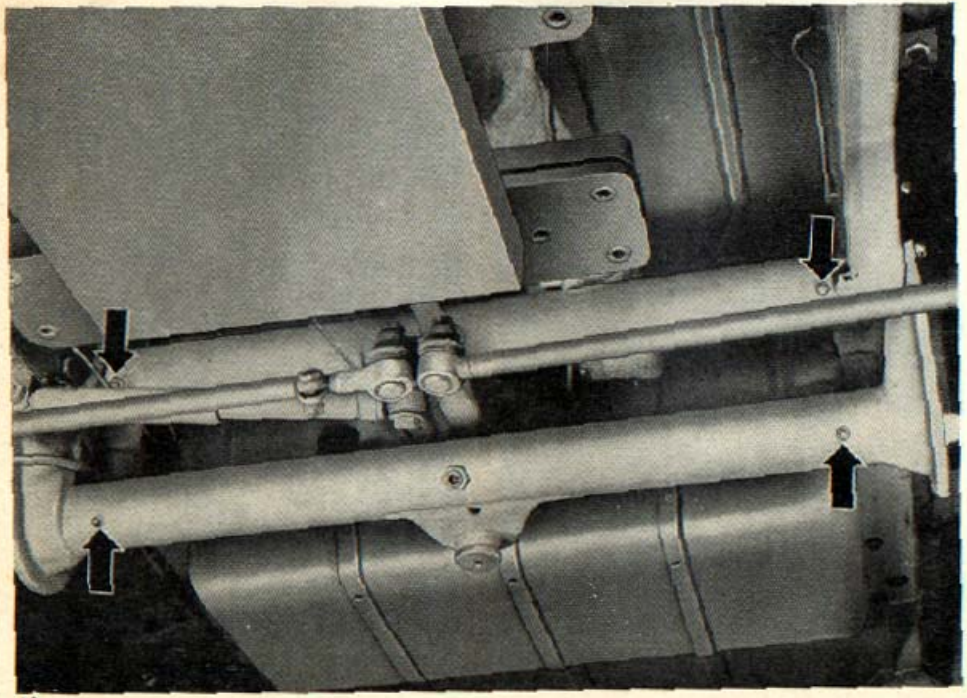
Front axle

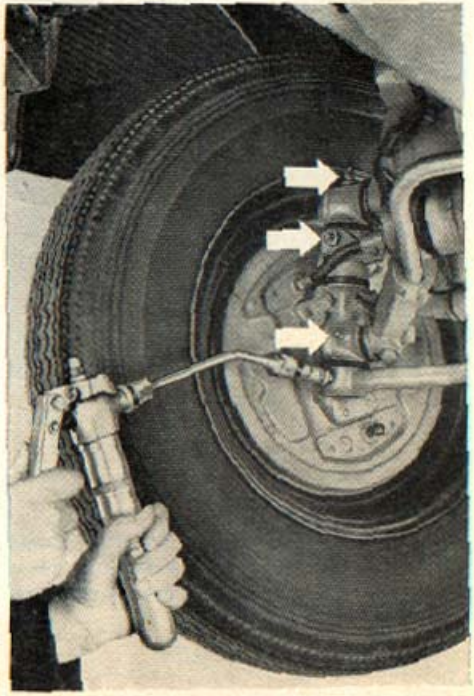
The front axle can only be lubricated properly when the axle is free of load, that is with the front end lifted.

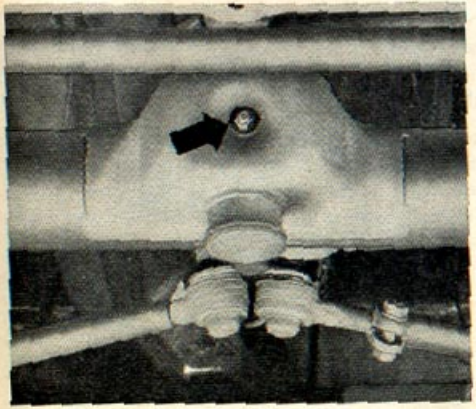
The four nipples on the axle tubes and eight on the king pins should be lubricated with a lithium-based **multi-purpose** grease.

The same grease is used for the swing lever shaft. The nipples and the grease gun nozzle should be cleaned carefully before greasing.

Place gun on nipples and inject grease until fresh grease starts to come out of the bearing.







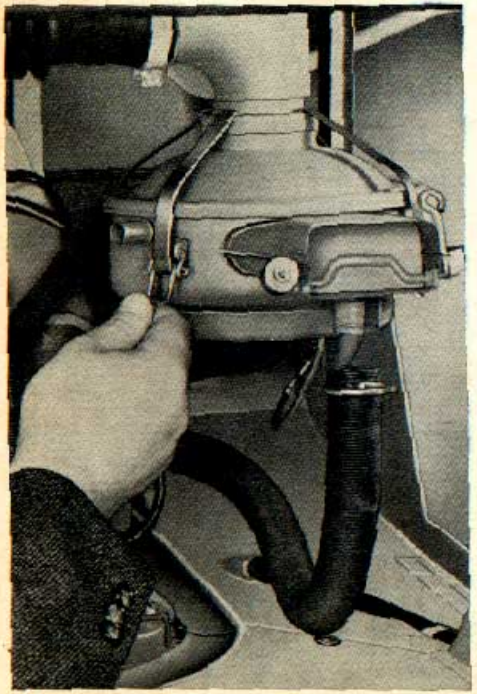
Grease and oil must not be left on tires and brake hoses for long periods. Even small traces should be wiped off immediately.

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

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.

All lock cylinders should be treated with graphite. Dip the key into the graphite, insert key 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.

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 3/16 in. (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 clips and take cleaner off elbow.

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

Clean bottom part carefully and put in .6 pint of fresh engine oil. 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.

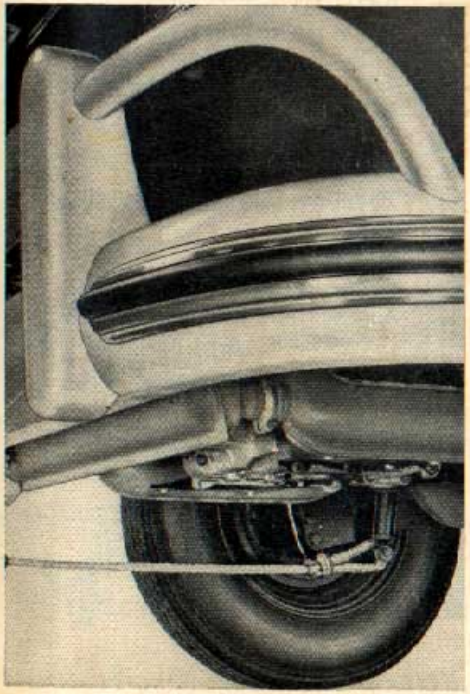
Check that the warm air flap in the intake pipe moves freely. At temperatures above 50° F (10° C) this flap should be fixed in position but at temperatures below 50° F (10° C) it should be free to move and regulate the flow of warm air according to the speed of the engine.

How to pull it and how to push it

Towing

Just in case you wish to attach a towrope to your vehicle, 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.



Pushing (to start). Turn the ignition key to the ON position, with the gears in neutral. After the pushing vehicle has left the Volkswagen free rolling and the VW has reached a speed between 15 and 20 mph (25 and 30 kph) shift into third gear and slowly let out the clutch. Never attempt to start your Volkswagen by towing it with another car.

Rocking (to free). If your Volkswagen should ever become stuck in snow or mud you may be able to free it by rocking the vehicle back and forth. Rock it as far rearward as you can, then hold it there by rapidly applying the hand brake. Shift into third and take the vehicle as far forwards as you can.

Repeat this back and forth movement as long as it seems feasible. If your Volkswagen has a tendency to move either in a forward or rearward direction (should you be stuck on an incline) it will be best to rock the vehicle only in third gear or reverse.

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

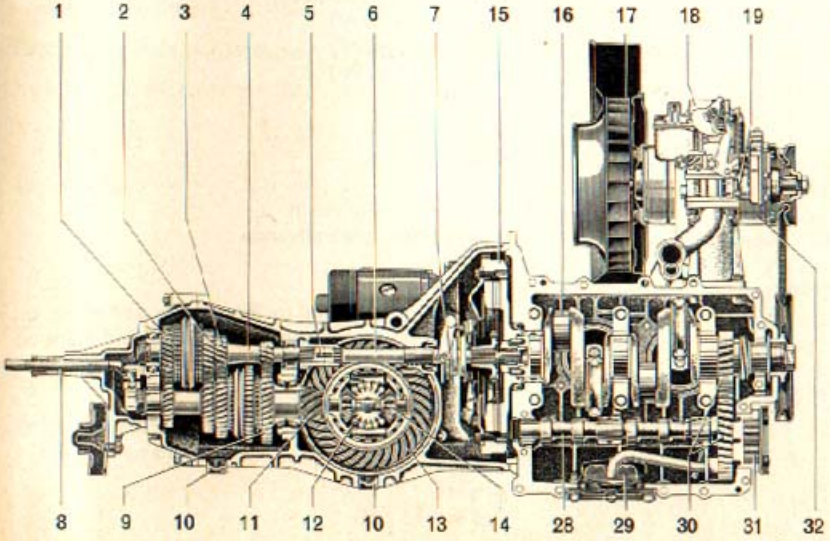
Bore	3.27 in. (83 mm)
Stroke	2.72 in. (69 mm)
Capacity	91.10 cu. in. (1493 cc)
Compression ratio	7.5 : 1
Maximum output SAE	53 bhp at 4200 rpm
Maximum torque SAE	78.1 ft. lb. at 2600 rpm
Mean piston speed	1811 ft/min at 4000 rpm
Valve clearance with engine cold	.004 in. (0.1 mm) intake and exhaust
Fuel consumption[1])	25.0 mpg
Fuel rating	91 Octane Regular
Oil consumption	Approx. 1.7—4.8 US pints per 1000 miles (1.4—4.0 Imp. pints per 1000 miles)

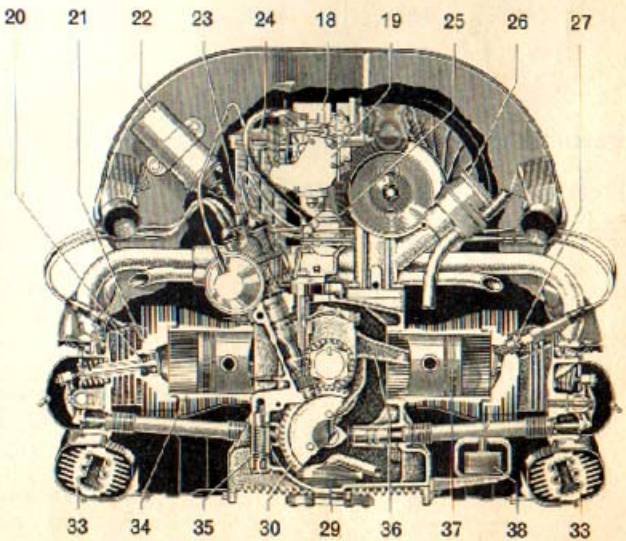
[1]) Measured consumption plus 10 %, with half load at a steady ¾ of maximum speed (53 mph) on level road.

Power transmission

Single plate, dry clutch
Baulk synchronized four-speed gearbox with 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: ¾ in. (10—20 mm)

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 gears
31 - Oil pump
32 - Generator
33 - Heat exchanger
34 - Cylinder
35 - Oil pressure relief valve
36 - Connecting rod
37 - Piston
38 - Thermostat





Chassis

Unit 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 link arms at front, swing axles with spring plates 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 *foot brakes*, *mechanical* hand brake effective on rear wheels.

Wheelbase	94.5 in. (2400 mm)
Turning circle diameter	approx. 39 ft. (12.0 m)
Track at front	54.1 in. (1375 mm)
Toe-in: unladen	.0—.08 in. (0—2 mm)
fully loaded	.08— .2 in. (2—5 mm)
Camber	0°40′ ± 30′
Track at rear	53.5 in. (1360 mm)
Wheels	5 JK x 14 (Wheel discs with drop center rims)
Tires	7.00—14 6 PR (tubeless)
Tire pressures: front	28 psi (2.0 kg/cm²)
rear with ¾ payload	33 psi (2.3 kg/cm²)
with full load	40 psi (2.8 kg/cm²)

Electrical system

Voltage	12 Volts
Battery	45 Ah
Starter	0.7 hp
Generator	360 Watts, 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	.016 in. (0.4 mm)
Spark plug	Bosch W 175 T 1 Beru 175/14 Champion L 87 y or plugs with similar values from other manufacturers.
Plug thread	14 mm
Plug gap	.028 in. (0.7 mm)

Dimensions and weights

	De luxe Station Wagon	Station Wagon	Kombi	Delivery Van	Pick-up		Double Cab	
					Without Tarpaulin	With Tarpaulin	Without Tarpaulin	With Tarpaulin
Length ..... in.	169.3	168.5	168.5	168.5	168.9	168.9	168.9	168.9
Width ..... in.	70.9	68.9	68.9	68.9	68.9	68.9	68.9	68.9
Height, unladen ..... in.	75.8	75.8	75.8	75.8	75.2	86.8	75.2	86.6
Ground clearance ..... in.	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
Unladen weight ..... lbs.	2535	2502	2514	2359	2392	2469	2491	2535
Payload ..... lbs.	2029	2062	2050	2205	2172	2095	2073	2029
Gross vehicle weight ... lbs.	4564	4564	4564	4564	4564	4564	4564	4564
Permissible front axle load lbs.	2094	2094	2094	2094	2094	2094	2094	2094
Permissible rear axle load lbs.	2535	2535	2535	2535	2535	2535	2535	2535

Capacities

Fuel tank	10.6 US gallons (8.8 Imp. gallons)
Engine	5.3 US pints (4.4 Imp. pints)
Rear axle and transmission	5.3 US pints (4.4 Imp. pints)
Reduction gears	each .53 US pint (.44 Imp. pint)
Brake system	.63 pints (.53 Imp. pints)
Oil bath air cleaner	.63 US pint (.53 Imp. pint)
Windshield washer	1 quart (approx.)

Performance

Maximum and cruising speed	65 mph
Climbing ability:	1st gear 28 %
	2nd gear 14.5 %
	3rd gear 8 %
	4th gear 4.5 %

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 Authorized VW Dealer who will also install them for you if necessary. You can fit many of the accessories yourself.

VOLKSWAGEN
Erprobtes Zubehör

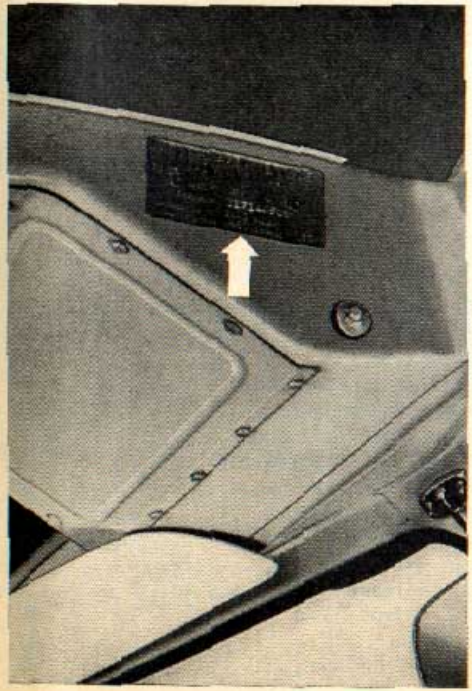
Approved Accessories
Accessoires Agréés
Accessori Approvati
Accesorios Aprobados
Utprovade Tillbehör
Acessórios Aprovados
Beproefde Accessoires

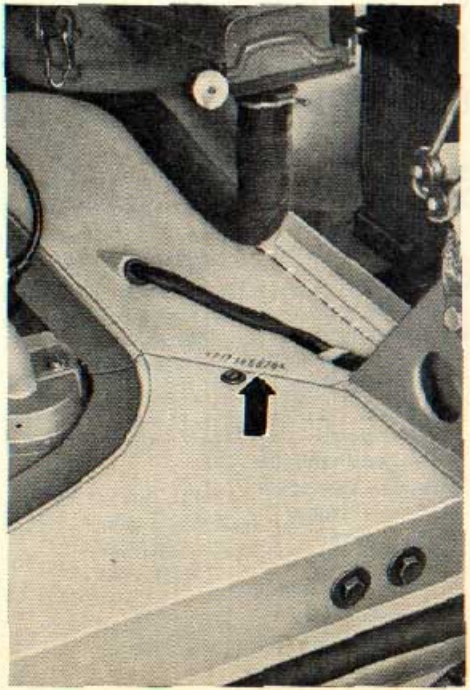
The identification plate
is in the cab on the right-hand side of the air duct. The 9 digit number after the words "Fahrgest. Nr." is the chassis number. It describes the model number, model year and serial number of the vehicle as shown in this sample

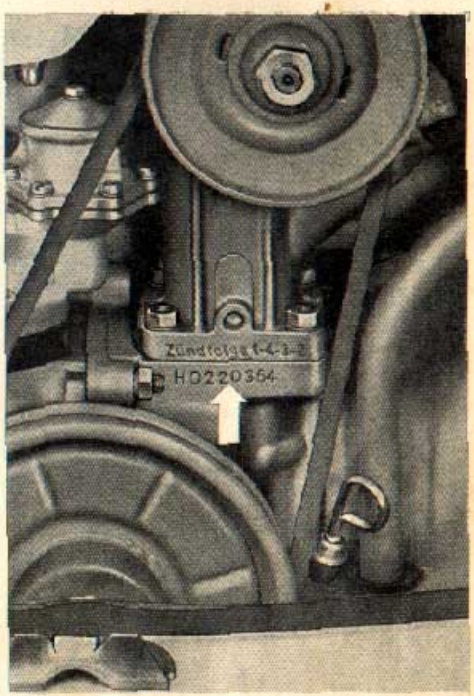
24 7 000001
Model Year Serial Number

The chassis number
is also stamped in the right-hand engine cover plate.

The engine number
is on the generator support flange.







Index

Lubrication and Maintenance

A. The free maintenance service at 300 miles - W 1 - consists of the following:

Oil change

1. Engine: Change oil, clean oil strainer. Check for leaks.
2. Transmission: Change oil, clean magnetic drain plugs. Check for leaks.
   Reduction gears: Change oil.
3. Windshield washer: Check fluid.

Maintenance service

The mechanic

1. Check rear axle shaft nuts, tighten if necessary.
2. Check V belt, adjust if necessary.
3. Clean fuel pump filter.
4. Check contact points, lubricate distributor, adjust ignition timing.
5. Adjust valve clearance.
6. Adjust clutch pedal free-play.
7. Check dust seals on tie rod ends. Check tie rods, tighten if necessary.
8. Check toe-in.
9. Check tire pressures. Check wheel bolts, tighten if necessary.
10. Check brake system for damage and leaks, check brake fluid level, add if necessary. Adjust foot and hand brakes.
11. Check operation of electrical system, and headlight adjustment.

The service adviser (quality control)

During roadtest:

Check efficiency of braking, steering, heating and ventilation systems. Check overall performance.

After roadtest:

Check cylinder head covers for leaks. Check and adjust idling.

B. A lubrication service every 3,000 miles - WS 5 - consists of:

1. Engine: Change oil, clean oil strainer. Check for leaks.
2. Front end: Lubricate.
3. Door and hood locks, door hinges and sliding door mounting points: Lubricate.
4. Carburetor linkage: Oil.
5. Battery: Check voltage and acid level, add distilled water if necessary. Clean and grease terminals.
6. Windshield washer: Check fluid.

C. A lubrication and maintenance service every 6,000 miles - W 10 - consists of:

Lubrication service

1. Engine: Change oil, clean oil strainer. Check for leaks.
2. Transmission: Check oil level, add if necessary. Check for leaks.
3. Front end: Lubricate.
4. Door and hood locks, door hinges and sliding door mounting points: Lubricate.
5. Carburetor linkage: Oil.
6. Air cleaner: Check, clean lower part if necessary and fill in fresh oil.
7. Battery: Check add distilled water if necessary. Clean and grease terminals.
8. Windshield washer: Check fluid.

Maintenance service

The mechanic:

1. Check V belt, adjust if necessary.
2. Clean fuel pump filter.
3. Check contact points, replace if necessary: lubricate distributor, adjust ignition timing.
4. Adjust valve clearance.
5. Clean spark plugs, check and adjust plug gap. Check compression.
6. Check control flap for carburetor preheating.
7. Check rubber valve for crankcase ventilation, replace if necessary. Check exhaust system for damage.
8. Adjust clutch pedal free-play.
9. Check dust seals on tie rod ends. Check tie rods, tighten if necessary.
10. Adjust torsion arm link pins.
11. Check toe-in.
12. Steering gear: Check and adjust play between peg and worm.
13. Check tires for wear and damage, check tire pressures.
14. Check brake system for damage and leaks, check brake fluid level, add if necessary. Adjust foot and hand brakes.
15. Check thickness of brake linings.
16. Check operation of electrical system and headlight adjustment.

The service adviser (quality control)

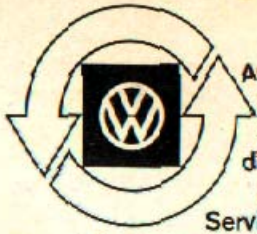
During roadtest:

Check efficiency of braking, steering, heating and ventilation systems. Check overall performance.

After roadtest:

Check cylinder head covers for leaks. Check and adjust idling.

D. In addition, every 30,000 miles, the transmission oil is changed - W 10 - and the front wheel bearings repacked - W 50.



Austauschdienst
Exchange Service
Service
d'échange-standard
Servizio rotazione
Servicio de Canjeo
Utbytessystem Serviço de Troca
Ruil-Systeem

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. Genuine VW Parts are covered by the same Warranty conditions as brand new vehicles. The genuine parts are expertly installed by every Authorized Volkswagen Dealer.

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 Dealership. 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 Authorized Volkswagen Dealer on all questions concerning repairs. He will be pleased to advise you and your vehicle will be in good hands.

158.555.23 · Printed in Germany · Limbach, Braunschweig · 12. 66

MAINTENANCE CARD

The Importance of Preventive Maintenance

Type 1 and 2

1. You naturally expect your Volkswagen to be reliable and economical and to last a long time, no matter how many miles you travel, how you drive or how bad the weather and roads are. This Maintenance Card in the Instruction Manual with its reminders for regular lubrications and maintenance services will help you achieve this.
2. The empty spaces will tell you when oil changes, lubrications and maintenance services are due. These maintenance services keep your Volkswagen in good running condition and contribute to your safety and help retain your vehicle's value. The mileages printed in the spaces tell you at a glance when the next oil change, lubrication or maintenance service is due.
3. Just hand this Instruction Manual to an Authorized Volkswagen Dealer – he will do the rest. The details are subject to alteration without notice.
4. The first oil change and maintenance service at 300 miles and the oil change at 3 000 miles are particularly important if your Volkswagen is to be properly broken in so that it can enjoy a long, trouble-free life. This Maintenance Card contains a punchcard for the free-of-charge maintenance service at 300 miles.
5. From 6 000 miles onward, the combined lubrication and maintenance service should be performed every 6 000 miles. Engine oil should be changed every 3 000 miles. If your Volkswagen is driven less than 3 000 miles in 3 months, have the oil changed every 3 months; if driven less than 6 000 miles in 12 months, have the front end lubricated once a year.
6. Every Authorized Volkswagen Dealer at home or abroad guarantees to perform all the operations listed for maintenance and lubrication services in accordance with Volkswagen quality standards.

Warranty Voucher

for the new VW automobile

Type: 2212

Chassis No. 1H0731710

Engine No. 2271116478

In accordance with the **terms of warranty** printed overleaf.

426 017

HUMPHREY MOTORS, INC.

(Stamp of selling VW Dealer)

The warranty commences at the date the VW automobile is delivered to the original purchaser,

viz. on July 31, 1967

(To be filled in by selling VW Dealer)

and covers a period of 6 months or the period before the vehicle has been driven 6 000 miles, whichever event shall first occur. Should any warranty claim arise, you are requested to submit this voucher to your VW Dealer.

VOLKSWAGENWERK AKTIENGESELLSCHAFT

i. V. Hering

Warranty of Volkswagenwerk Aktiengesellschaft for New Volkswagen Automobiles and Genuine Volkswagen Parts

This warranty applies to automotive vehicles of Volkswagenwerk Aktiengesellschaft (VW) of all models and types, as well as parts for such automotive vehicles (including exchange units), to the extent that such automotive vehicles and parts are supplied by VW (VW Products). This warranty covers parts manufactured by VW itself, as well as such parts which VW acquires from other manufacturers and either installs or supplies as parts.

1. Warranty claims can be made only through an authorized VW dealer or authorized VW repair shop. They must be made forthwith upon ascertainment of the defects. The repairs must be performed in the repair shop of an authorized VW dealer or in an authorized VW repair shop.

2. VW warrants VW Products to be free of defects in material and workmanship according to current industrial standards. The warranty becomes effective at the time of delivery of the VW Product by the authorized VW dealer, or the authorized VW repair shop, to the customer. The warranty expires six months thereafter or when the VW Product has been driven or used over a distance of six thousand miles, whichever event shall first occur.

As to VW vehicles assembled outside of Germany, the warranty of VW is limited to those components which are supplied by VW.

3. The obligation under this warranty is limited, at the election of VW, to the replacement or repair of such parts as shall be acknowledged by VW to be defective in material or workmanship. At the request of VW, parts to be replaced must be exhibited or shipped from the office where the claim is made through the proper distributor or Exclusive Importer to VW or its designee. All parts which shall have been replaced shall become the property of VW.

   No charge will be made to the customer with respect to the removal or installation of parts or with respect to freight incurred pursuant to this warranty.

4. **This warranty is expressly in lieu of all other express or implied warranties, obligations or liabilities of VW and of the selling dealer, whether for direct or consequential damage or otherwise, including obligations for breach of express or implied conditions and including, but not by way of limitation, express or implied warranties of merchantability or fitness for any particular purpose.**

5. There shall be no right of rescission or to a reduction of the purchase price unless VW should not be in a position to cure the defect.

6. The warranty is fully discharged:
   a) If the VW Product has been interfered with by unauthorized persons in any manner not approved by VW; or
   b) If parts have been installed the use of which has not been approved by VW;
   and if in the sole judgment of VW the damage is causally related to the interference in case (a) or to the installation of unapproved parts in case (b).
   The warranty will also be fully discharged if the customer has not complied with the instructions (Instruction Manual) of VW for the operation of the VW Product.

7. Normal wear and tear is excepted from the warranty. The same applies to damage brought about by negligent or improper handling, including, but not by way of limitation, damage due to storage or corrosion.

Delivery Inspection	300 miles W 1		3 000 miles
426 017	Engine and Transmission Oil change	Free Maintenance Service	WS 5 Oil change
(Dealer Stamp) HUMPHREY MOTORS, INC. Hayward, Calif.	(Dealer Stamp) CUSTOMER PAYS FOR OIL & GREASE ONLY RON PRICE VOLKSWAGEN SO. SAN FRANCISCO CALIFORNIA	(Dealer Stamp) RON PRICE VOLKSWAGEN SO. SAN FRANCISCO CALIFORNIA	(Dealer Stamp) RON PRICE VOLKSWAGEN SAN FRANCISCO CALIFORNIA
Date	Date 8-11-67	Date 8-11-67	Date 7/10/67
Miles	Miles 287	Miles 287	Miles 10,247

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