



مركز الدراسات والبحوث
البيئية والبيئية

VOLKSWAGENWERK · GMBH

VOLKSWAGEN
Englisch

Preface

It is our sincere desire that the excellent performance and economical operation of your VOLKSWAGEN will justify the confidence you have placed in our firm when purchasing this new car.

Your VOLKSWAGEN is ingeniously designed and of sturdy construction and has stood up under the most severe driving conditions. In order to promote maximum efficiency, we particularly stress the importance of following the recommendations set forth in the ensuing pages. You will find in this booklet everything pertaining to the operation and maintenance of your VOLKSWAGEN. In addition to such information, you will find all kinds of interesting facts and a recapitulation of the technical data.

Regular attention to proper lubrication and maintenance of your car is essential. An extensive network of VW Service Stations is available, and you will readily recognize such stations by the familiar blue VW SERVICE sign. These repair shops are in closest contact with the Volkswagenwerk through our field-engineers and master mechanics, thus providing skillful and expert performance of any job to be done.

If you follow the advice and instructions contained herein, your VOLKSWAGEN will give you the utmost service and satisfaction.

And now go ahead and enjoy your ride!

VOLKSWAGENWERK GMBH
Service Department



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Lubrication

PROPER LUBRICATION IS OF VITAL IMPORTANCE TO YOUR VOLKSWAGEN

The extra time spent in following these recommendations will be amply rewarded in the long run by your car's efficient performance. It is up to you to maintain the standard of safety offered by your VOLKSWAGEN, and to insure the long life and good service which you have the right to expect from this highly economical car!

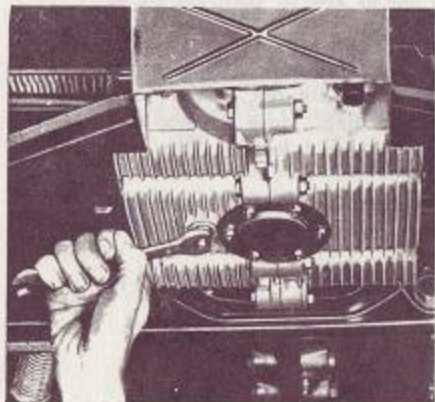
TO LUBRICATE CORRECTLY MEANS TO LUBRICATE AMPLY AND AT PRESCRIBED INTERVALS!

Therefore, do not shy at the work connected with the regular lubrication service. A Lubrication Chart can be found on page 55, indicating the respective mileages at which to lubricate.

Our Service Policy makes it possible for you to have your VOLKSWAGEN lubricated in our workshops, by skilled hands, with the best available lubricants, at a low cost and at a minimum of time. You really cannot afford to miss this opportunity!

ENGINE

The change of oil at prescribed intervals is necessary even if the very best trademark oils are used. Diluted and dirty oil in your engine simply means a greater strain and a shorter period of life for your engine.



The old oil should be drained after the drain plug at the bottom of the crankcase has been removed. Draining should take place while the oil is warm. For a better cleaning of the complete lubrication system, the engine should be allowed to idle while being flushed thoroughly with 1 Liter (1 quart) of winter oil (SAE 20).

Under no circumstances a so-called flushing oil, or even kerosene, should be used for flushing the engine.

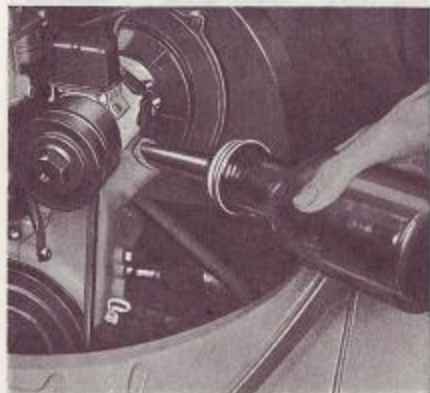
The residue of the flushing agent, which would remain in the crankcase and especially in the oil cooler, would decrease the lubricating efficiency of the fresh oil.

After the engine has been flushed and emptied, it should be refilled with **2 1/2 liters (5.3 U. S. pints, 4.4 Imp. pints) of engine oil.**

The oil strainer retains foreign matter and should be taken out and cleaned according to the Lubrication Chart. When the strainer is inserted again, the lower part should lie beneath the oil inlet pipe. The two gaskets should be renewed.

TRANSMISSION

The transmission gears and the rear wheel drive of your VOLKSWAGEN are combined in the transmission case and are lubricated jointly with gear oil. This kind of oil can be readily distinguished from regular motor oil by its heavier viscosity and darker coloring. An early change of oil, while the car is being broken in, will contribute to a smoother operation of the gears. The used oil should be drained by simultaneously removing the two drain plugs, and such draining too should be done while the oil is still warm.





Then refill with

**2 liters (4.2 U. S. pints, 3.5 Imp. pints)
transmission oil.**

The oil level should be checked in accordance with the Lubrication Chart. Keep the lubricant level somewhat below the bead of the filling stud. In order to maintain the characteristics of the transmission oil, it should not be mixed with any other oil, as the two will not blend.

STEERING GEAR

The steering assembly should be lubricated with transmission oil exclusively, and under no circumstances with grease or hypoid oil. It is accessible through a hand-opening underneath the spare wheel. The level of the oil in the steering case should be kept somewhat below the filler plug hole.

CHASSIS

A thorough lubrication of the front axle bearing points is only insured with the front axle raised off its wheels.

Prior to lubrication, the grease nipples should be cleaned thoroughly with a clean piece of cloth, so as to avoid any dirt or foreign matter entering the nipples.

The tip of the grease gun should be pressed onto the nipple, whereupon grease should be injected until the excess grease begins to emerge at the edges of the lubrication point.

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If the car is driven mainly over rough roads we recommend applying an additional lubrication to the one suggested on the chart, say every 1250 km. (800 miles) particularly at the lubricating points of the suspension links of the front axle and the outer track rod joints.

FRONT WHEEL BEARINGS

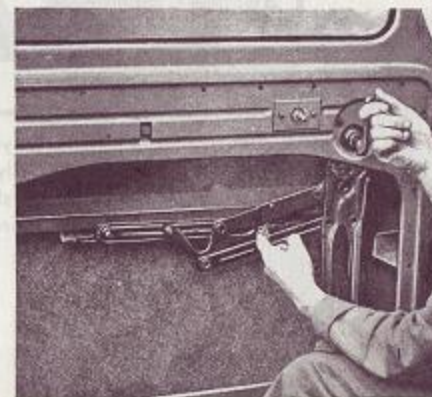
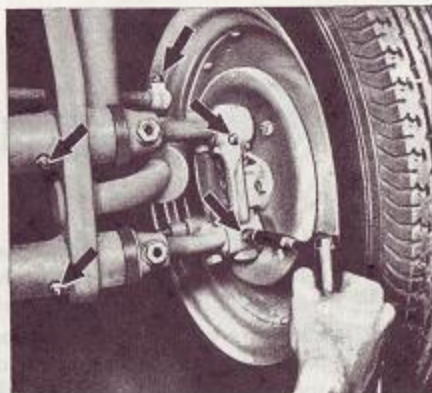
Taking utmost care to keep them absolutely free from dirt, the caps of the front wheel bearings should be re-packed with grease after the old grease has been removed. Prior to greasing the left-hand cap, remove the split pin of the speedometer cable.

DOOR AND WINDOW REGULATORS

The door latches and striker-plate pins should be slightly greased. Apply a few drops of oil to the door and hood hinges, after dust and soil have been removed. The window regulators are accessible after the regulator and inner door handles and the trim panel have been taken off. Press down the escutcheon plates of each handle, push out the pins and take off the handle. The trim panel is held by elastic clamps. Gears and joints of the window regulators should be greased.

Door cylinder locks should be treated with graphite. Blow a small quantity of powdered graphite through the key hole. Dip the key into the graphite, insert key and move it back and forth several times.

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Wheels and Tires

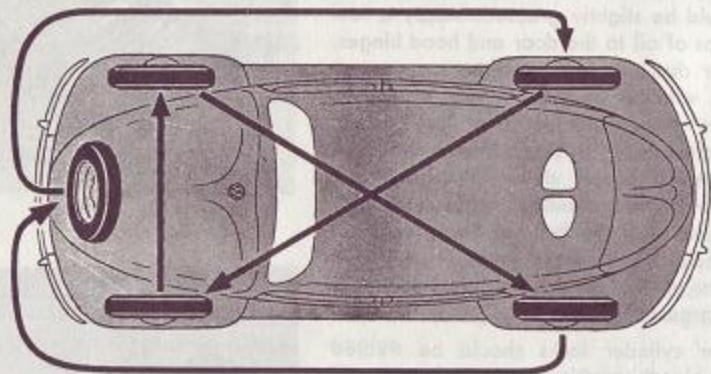
Under-inflation or over-inflation are the most common causes for tire failures. It is recommended, therefore, that the air pressure be checked frequently, preferably when the tires are normally cold.

There are some other causes for premature tire wear which are purely the result of operating conditions and can be controlled by the driver. High speed driving and cornering, skidding to a stop and striking curbs or objects in the road may wear tires more than many miles of careful operation.

The life is affected too by incorrect front wheel alignment or lack of balance of the tire and wheel assemblies.

Avoid overloading the car and protect the tires from intense sunlight, fuel, or oil.

Normal wear may be kept at a minimum by interchanging wheels and tires inclusive spare wheel at approximately 5000 km. (3000 miles) intervals. Change wheels as pictured in the illustration.



As a precautionary measure, you should employ the better tires on the front wheels, if already unevenly worn. When the tires are being mounted, the red mark on the sidewall should be aligned with the valve to insure better balancing of tube and tire.

CHANGING WHEELS

- 1 - Set the hand brake securely and block the wheel opposite to the one being removed to prevent the car shifting off the jack.
- 2 - Insert jack into the square tube below the running board in front of the rear fender.
- 3 - Remove hub cap.
- 4 - Loosen wheel bolts by means of the box spanner before wheel is fully jacked up.
- 5 - Raise jack until tire clears ground.
- 6 - Remove wheel bolts and remove wheel.
- 7 - When reinstalling the wheel, operate the jack until the five holes in the wheel are nearly lined up with the holes in the brake drum.
- 8 - First, insert one wheel bolt only. Tighten it to such a degree as to allow the wheel to be swung around this point by hand until the remaining holes in the wheel and brake drum coincide.
- 9 - Insert the remaining bolts until the countersunk heads rest centrally in the corresponding recesses of the disc-wheel.
- 10 - Tighten all bolts diametrically opposite in turn.
- 11 - Lower the car sufficiently to contact the tire with the ground and make sure that all bolts are tight.
- 12 - Install hub cap and make sure that it is tightly installed, in order not to lose it and to prevent noises.



Care of the car

CLEAN AND NEAT APPEARANCE

To keep the VOLKSWAGEN looking smart and new should be a matter of pride to the driver or owner of the car. We made it the object of our efforts to offer a lasting paint finish of sparkling lustre. A chemical treatment, called Bonderizing, protects the body against rust and corrosion and anchors the paint securely to the metal. The finish is of high-quality synthetic resin and carefully blended to obtain the most beautiful shades.

You will realize the importance of the paint finish if you consider that it is exposed to the elements; it has to resist dazzling sunshine, rain, dust and dirt. That is why a periodic care of the body is necessary to retard any disintegrating process.

WASHING YOUR CAR

Wash your new car frequently during the first weeks. This practice will be of great advantage to the finish. For washing your car you require a soft sponge for the body, a soft brush for the wheels, a sturdy, long-handled brush for the chassis, and plenty of clear water! For drying the car you need a chamois.

The chassis and lower part of the body should first be flushed with water, to soak off the dirt, and afterward a brush should be used.

Apply an even spray of water on the exterior finish of body and wheels until dirt is soaked off. Do not allow a hard shot of water to hit the varnished surface. Using plenty of clear water, dirt should be removed with a sponge. Care should be taken to clean the sponge at short intervals so as to avoid scratches on polished parts. There are some approved shampoos which greatly facilitate this job. Avoid the use of any product which has not been recommended by your service station. It is of utmost importance to wash the body thoroughly with water after the shampoo has been applied to insure that no traces of it remain on the body.

After washing, rub down with a clean chamois to prevent water spots. Some cleaners even render the rubbing down unnecessary and it is sufficient to remove traces of water.

PRESERVATION

means to restore certain greasy substances which have been removed from the finish after a longer time by weather influences. As the greasy substances are vitally important to the elasticity of the finish, it is necessary to apply a protective water-repellent coat of wax on the body. The intensive cleaning effect of the shampoo removes this protective coating so that it should be renewed accordingly.

A preservative specially produced for the finish of your VOLKSWAGEN can be obtained under the designation "L 190" from your service station. The body should be subjected to a wax application after the first eight or ten weeks and then regularly at intervals of from six to eight weeks — in any case after each shampoo washing, as already mentioned. Applying the preservative is quite easy; spray it on the body or use a soft cloth, then rub it down when dry, using polishing cotton or a soft polishing cloth.

Of course, the car must be washed and dried carefully prior to applying the preservative.

POLISHING

You should polish your car only when its appearance has been strongly affected by road dust, sunlight and rain due to an insufficient care and when the application of the preservative no longer restores the original lustre. Avoid the use of abrasives or chemically harmful products, even if their first application seems to give satisfactory results. A special polish for treating our synthetic-resin finish is also obtainable from our service stations under the designation "L 170".

Prior to applying the polish the car must be washed and dried carefully. Dust or soil should never be wiped off in a dry state. The polish should be applied with a soft and clean cloth or polishing cotton — use a straight horizontal or vertical motion rather than a circular motion. After some time of rubbing you will feel a slight resistance, which indicates that the ingredients of the polish have settled in the finish and that the solvent has evaporated. Now take clean polishing cotton and rub the body down until the high lustre is restored. Do not apply the polish on too large an area of the body at a time. A subsequent application of the preservative gives you care-free pride in your car for a long time.

Never wash or polish the car in sunlight or when the metal is warm.

HOW TO REMOVE SPOTS

By a mere washing you cannot always remove splashes of tar, oil traces, "baked on" insects, etc. As a matter of principle, such foreign bodies should be removed as soon as possible, for if you neglect this rule, permanent damage may result to the finish.

TAR SPOTS

An unpleasant sight, to be noticed particularly on light-colored cars, are tiny tar spots which show up on the fenders on hot days when driving on newly tarred roads. Tar splashes have a tendency to corrode the finish within a short time and should be removed immediately when discovered. On the way, you usually have nothing at your disposal but fuel, which may be applied with a soft cloth. It is, however, better to use our preservative already mentioned or kerosene or turpentine oil. After this, the treated spots should be washed with a mild, lukewarm soap-solution, and rinsed, in order to remove traces of the cleansing agent.

INSECTS

are caught especially during the night, in hot weather, by fenders, headlights, and front hood. Once baked on they can hardly be removed with water and sponge, but should be treated with lukewarm soap-solution.

BLOOMING TREES

but more especially lime-trees, in many instances drop tiny quantities of liquids. Cars that have been parked underneath such trees become "freckled" all over. These stains, too, can be readily taken off with soap-solution.

A treatment of the cleaned spots with the preservative is strongly recommended.

CLEANING CABRIOLET TOPS

Careful attention should be given to the sliding roofs and fabric tops used on Cabriolets to retain their neat appearance and to keep them waterproof. The fabric top may be cleaned with a brush or whisk broom and thereupon washed with a mild, lukewarm soap-solution or shampoo. Finally rinse with clear water. Spots in the fabric should not be removed with fuel, but with an approved cleaning fluid.

A wet top must only dry in the closed position to avoid damp-stains. Especially in a closed garage it is advisable to open the door windows to produce better airing conditions.

CHROMIUM-PLATED PARTS

should be lightly coated with chromium wax or vaseline.

CARE OF THE UPHOLSTERY

If no vacuum cleaner is available, the upholstery should be cleaned thoroughly with a brush or whisk broom.

Grease and oil stains on the upholstery or interior trimming are removed with cleaning fluid. Do not pour the cleaning fluid directly on the spot. Moisten a clean, not colored, cloth with the fluid and rub with a circular motion, starting outside the spot and working inward to the center.

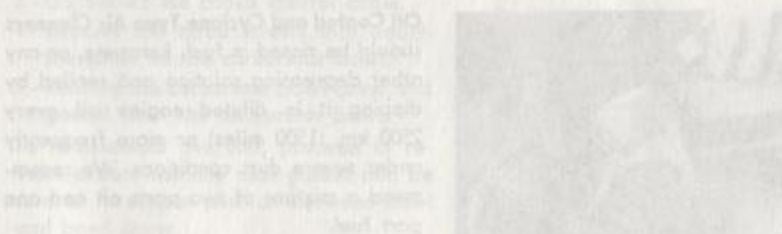
Other stains can generally be removed with lukewarm soap-suds.

CLEANING GLASS

The windows can be cleaned by washing with water and wiping dry with a clean, soft linen cloth or chamois. In order to facilitate this task on the windshield, the arms of the windshield wipers may be bent forward. To clean unusually dirty glasses, use alcohol or household ammonia and lukewarm water.

CLEANING THE CABRIOLET

The car should be washed with water and soap-solution. The wheels should be cleaned with a brush. The engine and motor should be cleaned with kerosene or turpentine. The interior should be cleaned with a brush and vacuum cleaner. The upholstery should be cleaned with a brush and vacuum cleaner. The windows should be cleaned with water and ammonia. The chrome should be cleaned with chromium wax or vaseline. The tires should be cleaned with a brush and vacuum cleaner. The car should be dried with a clean, soft linen cloth or chamois. The car should be stored in a dry, well-ventilated place.



Maintenance

The VOLKSWAGEN SERVICE ORGANISATION has made available for you an extensive network of Authorised VW Service Stations, staffed with well trained and experienced men, and equipped with all the required special tools and appliances to service your car. In event the need for service arises when touring, or far away from home, look for the well known VW Service Sign. The workshop displaying this sign is your assurance of the same expert, prompt, and courteous service you are accustomed to receive at home.

In the case you can't get to an Authorised VW Service Station in time, we are giving you some informations which, if needed, will help you to carry out normal maintenance work. However, repair jobs which are beyond your capacity can only be performed by your next VW Service Station. There your car will be given expert treatment by those familiar with its construction.

This will save you time, inconvenience, and money.

SERVICING THE AIR CLEANER

The carburetor is equipped with an efficient air cleaner of the felt cone type. All air used for combustion must pass through the air cleaner. Thus the air is freed from dust and grit which might otherwise reach the engine cylinders.

Regular attention should be given to the maintenance. A dirty air cleaner reduces the performance of the engine and increases the fuel consumption.

The felt cone air cleaner is to be rinsed in fuel or another volatile cleaner at intervals indicated in the Maintenance Chart. Blow it dry before refitting it.

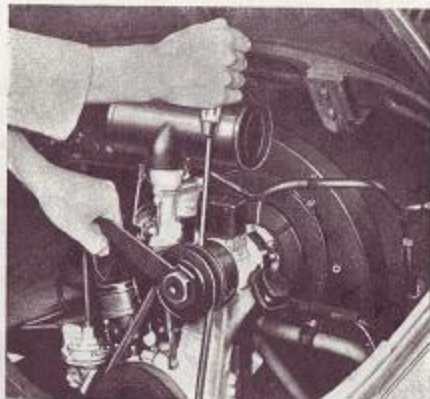


Oil Coated and Cyclone Type Air Cleaners should be rinsed in fuel, kerosene, or any other degreasing solution and reoiled by dipping it in diluted engine oil every 2500 km. (1500 miles) or more frequently under severe dust conditions. We recommend a mixture of two parts oil and one part fuel.

ADJUSTING THE FAN BELT

To adjust the fan belt remove nut and outer half of generator shaft pulley. When loosening or tightening nut, insert a screw-driver in the slot cut into the inner half of the pulley, and support it against upper generator housing bolt. The adjustment of the fan belt tension is effected by means of spacer washers situated between the two pulley halves. Belt slackness is taken up by removing one or more washers. If the belt is in too much tension, one or more washers should be added.

The fan belt should not be too loose, nor should it be too tight. Newly installed belts will stretch to some extent and should, therefore, be checked after 100—200 kilometers (60—120 miles) of running, and should be adjusted if necessary.



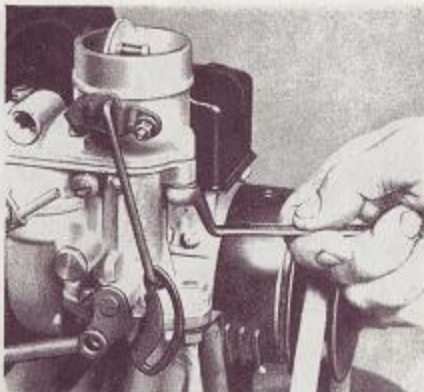
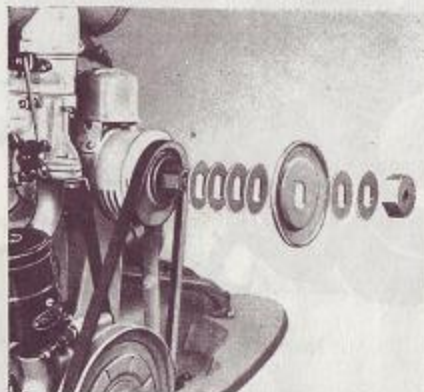
CLEANING THE CARBURETOR

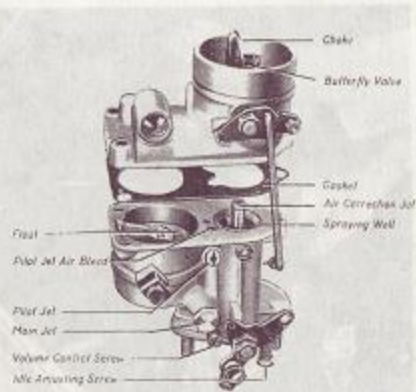
To clean the carburetor, remove the bowl cover.

Bowl cover removal

- 1 - Loosen the air cleaner clamp screw, and lift the air cleaner off the carburetor.
- 2 - Disconnect the fuel line at the carburetor.
- 3 - Disconnect the choke control cable.
- 4 - Remove the three screws that attach the cover to the carburetor bowl.
- 5 - Remove the carburetor bowl cover and gasket from the carburetor bowl.

To re-assemble the unit, proceed in reverse order. Install a new gasket and be sure of its proper position between bowl and bowl cover.





Cleaning

- 1 - Remove float and lever assembly.
- 2 - Remove the main jet plug and clean the main jet.
- 3 - Clean the float chamber.
- 4 - Clean pilot jet air bleed.
- 5 - Clean pilot jet.
- 6 - Clean air correction jet and emulsion tube.
- 7 - Clean the float needle valve.

Blow out the jets with compressed air! Never use a pin or a piece of wire, as this will damage the jets.

ADJUSTMENT

The carburetor is tested at the factory and properly adjusted to the engine. Do not alter this adjustment by exchanging the jets, or by changing the venturi 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.

If you change from one kind of fuel to another, say from a lower grade of gasoline to a premium grade, such as Ethyl, the carburetor does not need any re-adjustment. Only an idling adjustment will be necessary from time to time, according to climatic conditions. Before attempting to adjust the carburetor, make sure the engine is at normal operating temperature.

- 1 - Turn the idling mixture screw in until it seats lightly, then back it off approximately $\frac{1}{4}$ turn.
- 2 - Turn the idling adjusting screw in or out until the approximate idling speed is attained.

- 3 - Turn the idling mixture screw in or out until the engine runs even and steady.
- 4 - Finally re-adjust the idling adjusting screw until the engine runs at normal idling speed.

The adjustment is perfect if the engine does not stall after the throttle either is suddenly opened or suddenly shut. Poor idling may also be the result of damaged gaskets or intake manifold flanges not sufficiently tightened.

Skilled hands and experience are required to check and adjust the carburetor. For this reason you should leave this job to an Authorised VW Service Station.

CLEANING THE FUEL FILTER

A fuel filter, combined with the fuel cock, is mounted underneath the tank. The filter is accessible either from below or, after a front wheel has been removed, from the side. To remove the strainer, loosen the thumb nut or wing nut on the bowl base and remove the bowl. Loosen and clean the strainer. Remove dirt and water from the bowl. On reassembling the filter, make sure the gasket is in perfect condition.

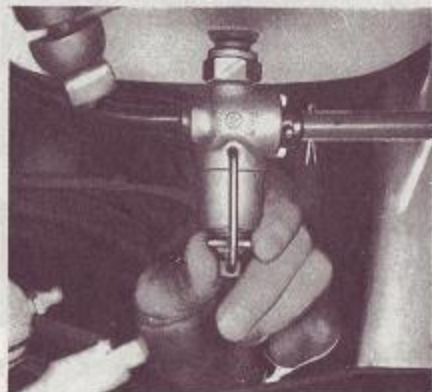
VALVE ADJUSTMENT

Proper adjustment of the valve clearance is important to prevent burning of valves and poor engine performance.

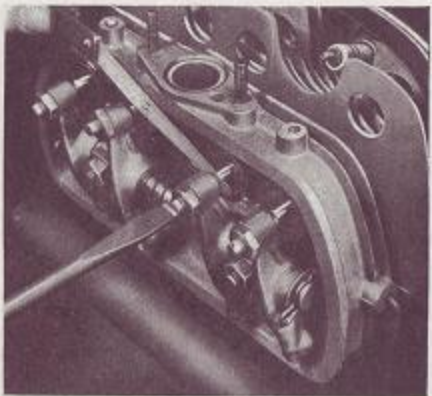
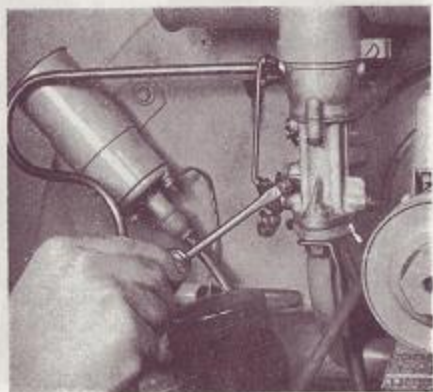
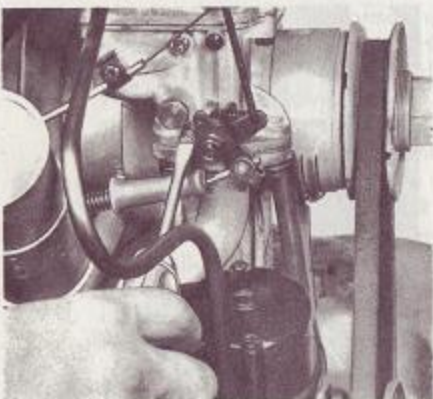
The following procedure should be carried out only in such emergencies when it is impossible for you to reach a VW Service Station.

Valve clearance should be 0.15 mm (.0059") with the engine cold. The valve clearance increases when the engine warms up. For this reason, **only adjust valve clearance, when the engine is cold** (at room temperature).

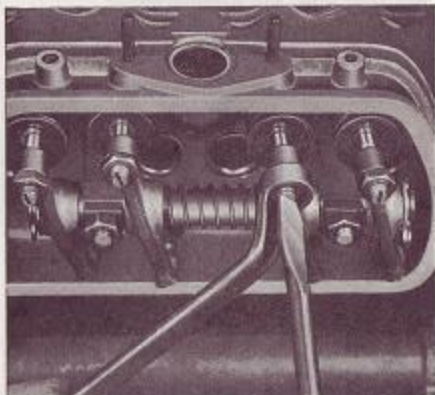
Valve adjustment may be made in the following sequence: 1st - 2nd - 3rd - 4th cylinder.



On reassembling the filter, make sure the gasket is in perfect condition.



Adjust the valves when the piston of the corresponding cylinder is in top dead center position of the compression stroke. Starting with the 1st cylinder, crank the engine over slowly to the left by the fan pulley, until both valves are in fully closed position and the timing mark on the pulley is in line with the vertical jointing faces of the crankcase.



Check the valve clearance with a feeler gauge, inserting the gauge between the adjusting screw of the rocker arm and end of the valve. If the clearance requires adjustment, loosen the lock nut of the adjusting screw and turn the adjusting screw as required to obtain the proper clearance. Tighten the lock nut and re-check the clearance. Readjust if necessary. Check and adjust the other valves to the proper clearance in this manner by turning the crankshaft anti-clockwise another 180° for each cylinder.

CHECKING THE SPARK PLUGS

The spark plugs must be thoroughly maintained for easy starting and economical operation. Inspect and clean them and reset electrode gaps before installation in the engine.

Electrodes and insulator

- fawn — good adjustment of carburetor and correct performance of spark plug,
- black — mixture too rich,
- lightgrey — mixture too lean,
- oiled up — failure of spark plug or worn-out cylinder.

In the case of fuels containing lead - tetra - ethyl (anti-knock fuel), the insulator will show a grey color, provided the engine is correctly adjusted.

Clean the spark plug with a brush and a chip of wood and blow them out. Inspect the spark plug for cracked insulator and burned or pitted electrodes. The insulator should be clean and dry on the outside as well to avoid short-circuits. Check the



electrode gap (0.6—0.7 mm. = .024—.028") and reset if necessary by bending the outer electrode. Look for a proper gasket before installing the plug. Generally speaking you may count on a service life of the spark plugs up to 15,000 km. (9300 miles).

IGNITION AND TIMING

Sufficient attention is not attached to the importance of correct ignition timing. The engine operation will be seriously affected if the ignition breaker points are not properly timed and correctly spaced. In many cases poor performance, high fuel consumption and even severe damage to the engine are the result of unskilled setting of the ignition. Normally, the adjustment should be carried out by an Authorised VW Service Station when the car is brought in for regular inspection. A few practical hints are given herewith, however, because in our experience damage is apt to result if the technical facts and data are not known.

ADJUSTING CONTACT POINTS

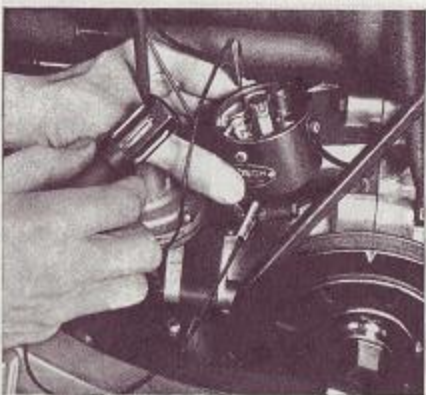
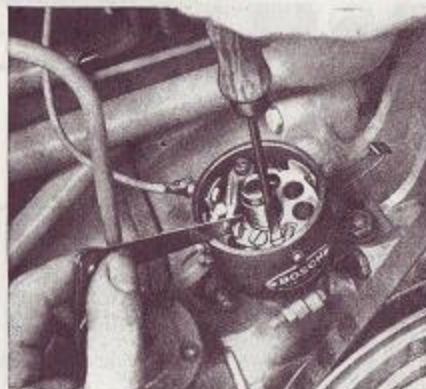
Remove distributor cap and rotor. The breaker contact points are adjusted by cranking the engine until the fiber block on the contact arm rests on the highest point of the cam lobe. Then loosen the stationary point locking screw and turn the eccentric adjusting screw until the correct gap is obtained. Use a feeler gauge of the proper thickness (0.4 mm. = .016"). Tighten lock screw and re-check the gap.

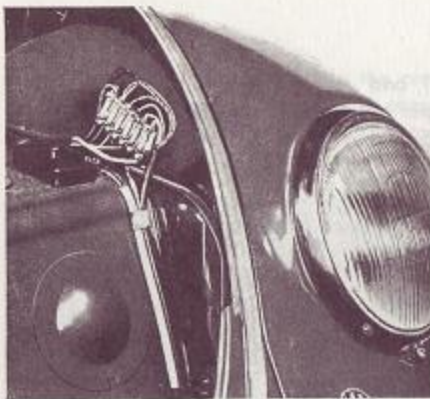
If the points are burned, rough or pitted, replace them. Grease cam lobes slightly. The distributor cap should be clean and dry, inside and out, particularly the inserts and the spark plug wire sockets, so as to avoid short-circuits. Make certain that the carbon brush is free in its recess in the center of the cap.

After the contact points have been adjusted, it is absolutely necessary to check the ignition timing.

IGNITION TIMING

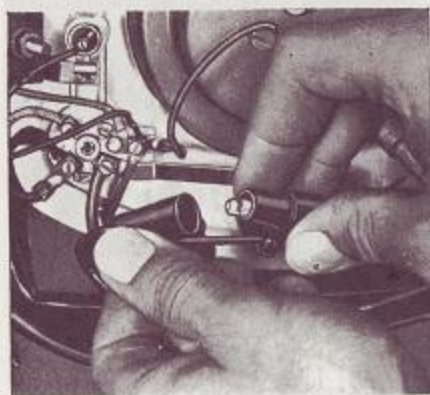
Crank the engine until the mark of the crankshaft pulley lines up with the verti-





cal crankcase jointing faces and the distributor rotor arm is in the position for firing on the No. 1 cylinder (see mark on rim of distributor base). Loosen the lock screw below the distributor base and rotate the distributor body clockwise until the contact points are closed. Now switch on the ignition and rotate the distributor slowly counter-clockwise until the contact points just mark to open. This may be seen and heard, for a spark will jump from one point to the other.

a



To obtain a more accurate adjustment for maximum results, it is advisable to use a test lamp (6 volts) or an ignition timing light. The test lamp should be connected to the distributor primary lead terminal and to the ground. The lamp will light up as long as the contact points are kept open by one of the four cam lobes of the distributor shaft. After the adjustment is completed, tighten the lock screw, replace the rotor and clamp the cap on the distributor.

b



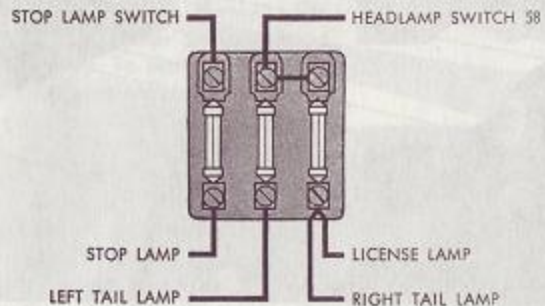
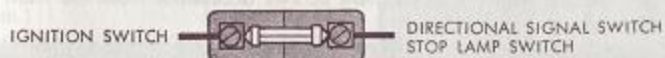
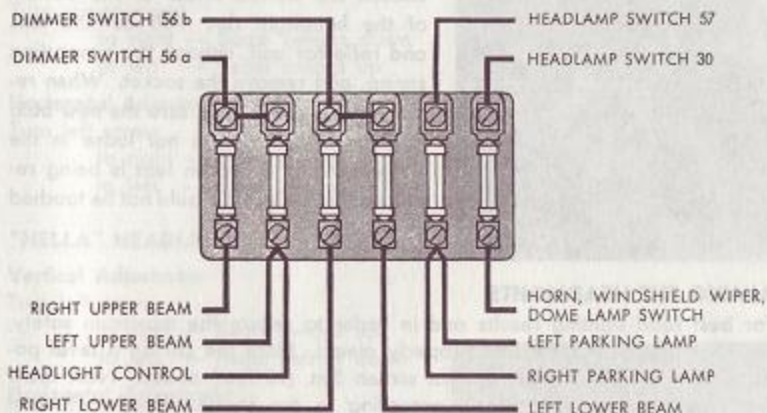
c

EXCHANGING FUSES

Fuse boxes are located as follows:

- a - underneath the front hood, on the left side next to the fuel tank,
- b - underneath the front hood on the back of the instrument panel,
- c - inside the engine compartment.

When a fuse has blown out, it is not sufficient to merely replace it by a new one. Inspect the electrical system for evidence of short-circuits or other faults that may have caused the fuse to blow out.



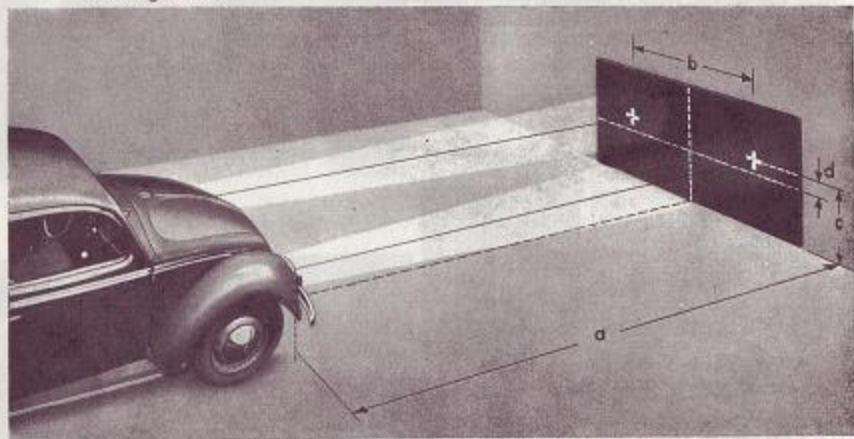


BULB REPLACEMENT

Loosen the slotted screw at the bottom of the headlight rim. Pull out the lens and reflector unit, unhook the supporting spring, and remove the socket. When replacing the bulb, make sure the new bulb is clean and that it is not loose in the socket. When a broken lens is being replaced, the reflector should not be touched or wiped off.

AIMING THE HEADLIGHTS

For best road lighting results and in order to secure the maximum safety, the headlight beams must be properly aimed. Place the car on a level position with a dark-colored vertical screen 5 m. (16 feet) ahead. Next draw two cross lines on the screen, according to the sketch. The longitudinal center line (car axis) must hit the center of the screen exactly between the two cross marks. Switch on the upper (country) beams and check the beams at the cross marks. Independent adjustment of both horizontal and vertical aim is provided with the adjustment screws accessible from the front of the headlight rim.



Dimension $a = 5$ m. (16.4 ft.) $b = 1104$ mm. (43.46 in.) $c = 610$ mm. (24.01 in.) $d = 50$ mm. (1.96 in.)
 "d" is the correct distance between the upper limit of the light spot and the center of the cross when adjusting the lower (traffic) beam.

"BOSCH" HEADLIGHTS

Vertical Adjustment

Turn upper screw
 to right — Beam swings down
 to left — Beam swings up

Horizontal Adjustment

Turn left screw
 to right — Beam swings to left
 to left — Beam swings to right

"HELLA" HEADLIGHTS

Vertical Adjustment

Turn left screw
 to right — Beam swings up
 to left — Beam swings down

Horizontal Adjustment

Turn right screw
 to right — Beam swings to right
 to left — Beam swings to left
 („Right" and „Left" means in driving direction.)

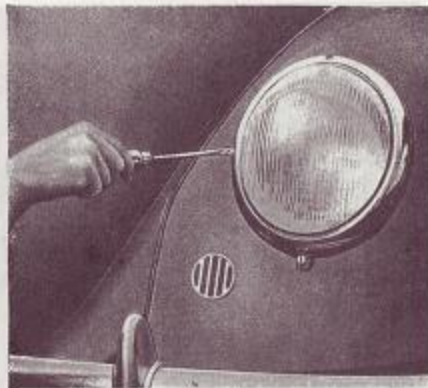
No further adjustment is needed for the lower (traffic) beam.

STOP AND LICENSE LIGHT BULB REPLACEMENT

The combined stop and license plate lights are accessible after the rear hood has been lifted up. To replace the bulbs, loosen the two nuts attaching the socket and pull out the socket.

TAIL LIGHT BULB REPLACEMENT

To replace a tail light bulb, remove the slotted screws and remove the bezel. Check terminals and lamp sockets for corrosion and tightness, to make reasonably sure that electricity is flowing to the bulb.



Driver's Controls

Are you familiar with the controls and instruments of your new VOLKSWAGEN? Just take a seat behind the wheel, make yourself comfortable, and get acquainted first with all the various levers, switches, and controls. Some of the features are familiar to you already, but here are the full details:

INSTRUMENTS:

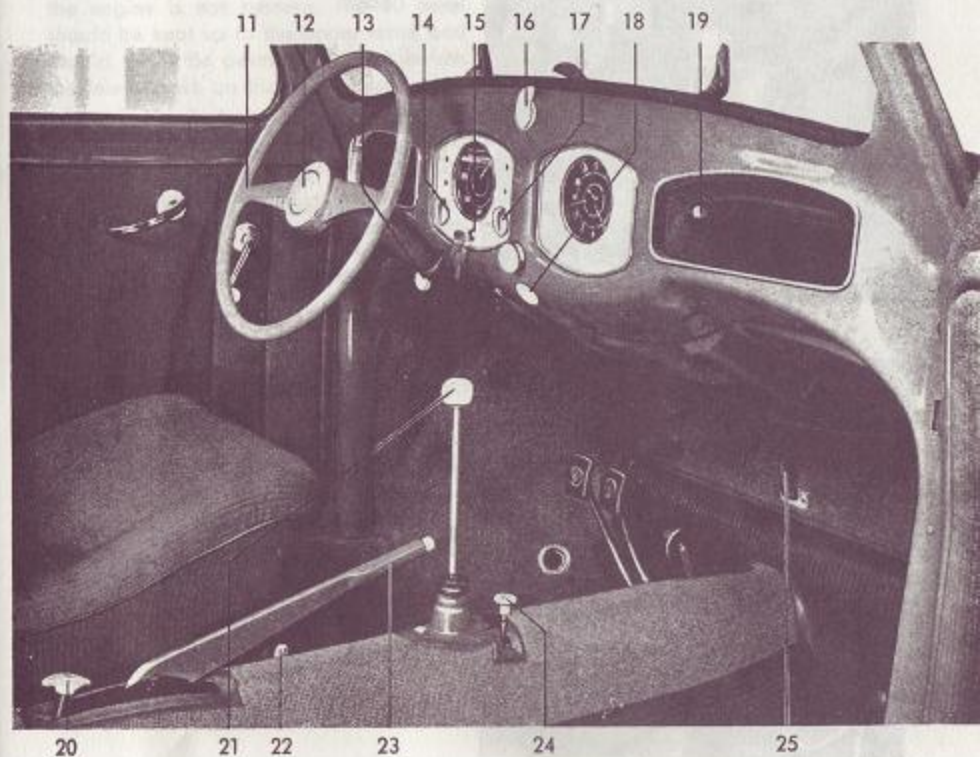
Speedometer	3
Control Light — Blue — Headlight Long Beam	1
Control Light — Red — Direction Indicator	2
Control Light — Red — Generator and Cooling System	5
Control Light — Green — Oil Pressure	4
Clock, 8-days Movement (Export Model)	6

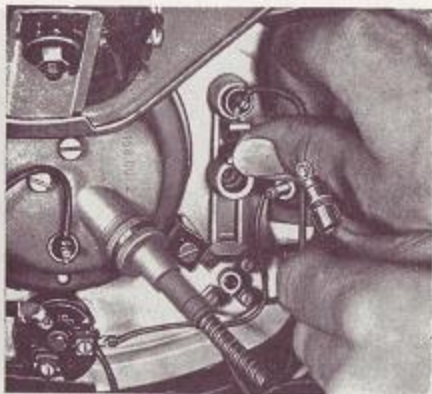
FOOT CONTROLS:

Clutch Pedal	8
Brake Pedal	9
Accelerator Pedal	10
Headlight Beam Switch	7

HAND CONTROLS:

Steering Wheel	11
Gear Shift Lever	21
Hand Brake Lever	23
Ignition Switch	15
Starter Button	18
Signal Switch (Direction Indicator)	16
Headlight Switch	17
Switch for Windshield Wiper and Dome Lamp	14
Horn Button	12
Choke Control	24
Heater Control	20
Knob for Hood Lock	13
Knob for Winding and Setting the Clock (Export Model)	19
Fuel Shut-off Cock	25
Seat Adjusting Handle (Export Model)	22





CONTROL AND INSTRUMENT LIGHT BULB REPLACEMENT

The lamps for oil pressure, charging, direction indicator and headlight main beam control as well as the speedometer and clock lamps are accessible after the front hood has been opened. Next remove the lining in front of the instrument panel. The sockets of the control lamp can be pulled out after lifting the retaining spring. The instrument bulbs are in sockets that snap out of the holes in which they are mounted.

BATTERY MAINTENANCE

The battery is located underneath the rear seats, where it is easily accessible for servicing. Ready starting of the engine depends upon perfect condition of the battery. Inspect the battery regularly as prescribed in the maintenance chart and even more frequently under conditions of extreme heat.

HYDROMETER TEST

The state of charge of the battery may be checked by means of a battery hydrometer. The specific gravity of the battery liquid will increase with the charging of the battery. Tested with the hydrometer, the gravity can be read from the scale of a float.

Battery fully charged	1.285 = 32° Bé
Battery semi-charged	1.230 = 27° Bé
Battery fully discharged	1.142 = 18° Bé

VOLTAGE TEST

In addition, a volt-ammeter test should be made to insure that the battery is in good operating condition and able to

provide the necessary current. The voltage of each cell should not fall below 1.6 volts while taking the reading (10—15 seconds). Otherwise the cell is discharged or defective. Under no-load conditions each charged cell should read between 2.1 and 2.0 volts.

LEVELLING BATTERY LIQUID

Add distilled water to each cell to bring the level to approximately 15 mm (.59") above the plates. Losses by evaporation may only be replenished by adding distilled water. Never add acid, unless it is known that acid has been spilled from the battery. Check specific gravity afterwards and compensate if necessary. Check condition of the battery posts and the cable terminals. They must be clean and tight to prevent excessive electrical resistance. Use a stiff brush to remove corrosion from both posts and terminals. Coat the clean posts and terminals with light grease or vaseline to prevent corrosion. Then tighten securely and make sure that there is a proper connection to the ground.

BRAKE ADJUSTMENT

Brake adjustment should be performed by an Authorised VW Service Station. However, if an emergency arises where the brakes must be adjusted before you can reach the next repair shop, the following procedure for bleeding and adjusting can be used.

HYDRAULIC BRAKE (Export Model)

The master cylinder is located behind the front axle tubes. To check the brake fluid level remove left (or right) front wheel (according to left- or right-hand drive). Remove all dirt from the top of the fluid reservoir and the filler plug before removing the filler plug. To fill up, use only **VW-Original Brake Fluid** or **Lockheed Brake Fluid**. The fluid reservoir should be kept at least $\frac{3}{4}$ full at all times.

BLEEDING HYDRAULIC SYSTEM

The hydraulic brake system must be bled whenever a fluid line has been disconnected or air has got into the system. The presence of air will cause "spongy" brake pedal operation.



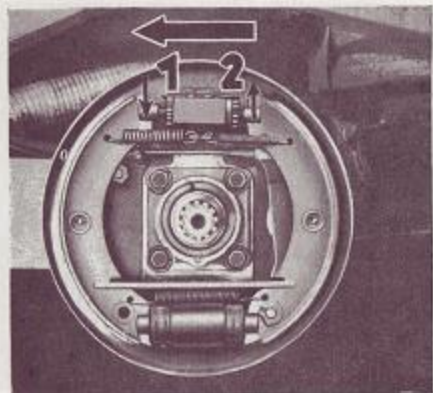
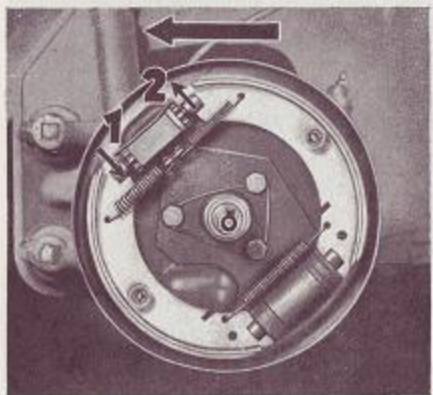


- 1 - Remove rubber cap of the bleeder valve of one wheel cylinder and attach one end of the brake bleeder hose to the valve. The longest brake line must be bled first.
- 2 - Place the opposite end of the bleeder hose in a glass container partly filled with brake fluid so that the end of the hose is submerged.
- 3 - Turn the bleeder valve to the open position (1—2 turns).
- 4 - Pump the brake pedal several times, forcing fluid through the lines. When bubbles cease to appear in the container, close the bleeder valve and remove the hose. Replace rubber cap. Make sure that enough brake fluid remains in the fluid reservoir, since otherwise air will be sucked in.
- 5 - Repeat the above operations on the other wheels.
- 6 - When the bleeding is completed, refill the master cylinder reservoir with brake fluid. Install the filler plug.

ADJUSTING HYDRAULIC BRAKE

Brakes require periodic adjustment to assure their proper operation. Too much free travel of the brake pedal is an indication that the clearance between brake shoes and brake drums has become too great and that the brakes need adjustment. This adjustment will usually compensate for such wear that will take place until relining of the shoes is required.

- 1 - Jack up all wheels clear off the floor.
- 2 - Release the hand brake.
- 3 - Turn forward the wheel to be adjusted, until the hole in the brake drum is in line with the adjusting nut No. 1, which is located behind the bearing support of the brake backing plate.



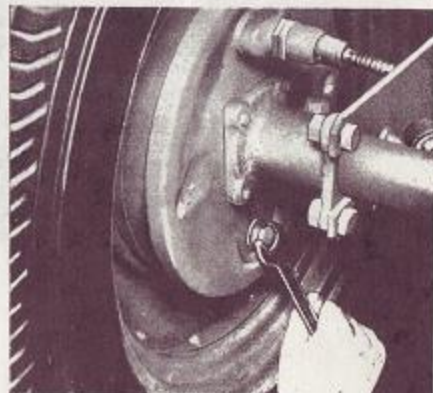
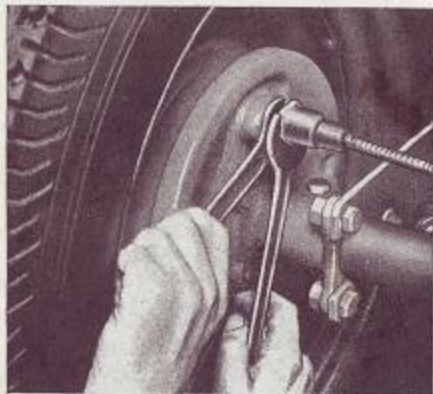
- 4 - Insert a screwdriver through the hole and turn said adjusting nut No. 1 in the direction indicated by the arrow using screw driver as a lever until a heavy drag is noted when wheel is turned by hand.
 - 5 - Repeat procedure on adjusting nut No. 2. Note the opposite turning direction of the two nuts.
 - 6 - Back off the adjusting nuts by 3 to 4 teeth.
 - 7 - Repeat the above operations on the other wheels.
- Follow strictly the sequence of adjusting the nuts mentioned above. Finally road test the car to assure proper brake operation.

ADJUSTING HAND BRAKE

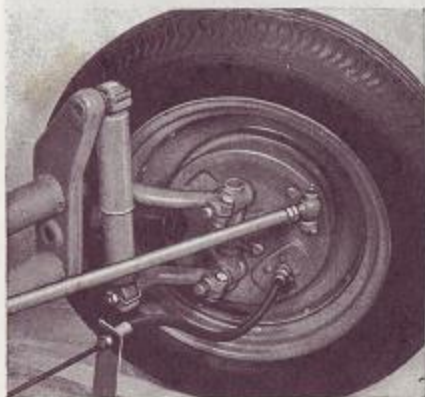
- 1 - Jack up both rear wheels.
- 2 - Remove end cover in front of the frame head.
- 3 - Tighten adjusting nuts on the front ends of the brake cables to a degree which will allow the rear wheels to turn freely when the hand brake is released.
- 4 - Pull up hand brake lever by two notches and make sure both rear wheels have the same braking effect. At the fourth notch it should be impossible to turn the wheels by hand.

ADJUSTING MECHANICAL BRAKE (Standard Model)

- 1 - Jack up all wheels clear off the floor.
- 2 - Release the hand brake lever.
- 3 - Loosen the counter-nuts and brake cable adjusting nuts at the brake backing plate and turn both clockwise, that is, towards the brake backing plate.
- 4 - Tighten brake-shoe adjusting nut until the brake drum no longer can be turned by hand.
- 5 - Turn back brake cable adjusting nut until there is very little clearance between brake cable and brake backing plate. Tighten counter nut.



- 6 - Again loosen the brake-shoe adjusting nut, until the brake-drum can still be turned freely. A light tap against the nut will place the brake-shoes and the adjusting cone in the right position.
- 7 - Repeat the above operations on the other wheels.
- 8 - Pull up the hand brake by two notches and check equal braking effect on all four wheels. Pull up hand brake for another notch and repeat check-up procedure. At the fourth notch it should be impossible to turn the wheels by hand.
- 9 - In case there is a difference in the braking effect between the four wheels, release the hand brake and loosen the brake-shoe adjusting nut on the wheel with the highest braking resistance. The brake cable adjusting nut, however, should not be readjusted. It likewise would be wrong to tighten the adjusting nut on a wheel which shows a lesser braking resistance.
- 10 - Lower the car and make a road test to assure proper brake operation.



STEERING GEAR

Only a minimum of maintenance is necessary to the steering gear. The need for adjustment will be evidenced by the development of excess free play in the steering wheel. The play should be as small as possible, but care must be taken to allow the front wheels to resume their straight-ahead position, after the car has taken a turn. As special experience is needed to properly service this unit, all operations or adjustments required should only be performed by an Authorised VW Service Station.

The maintenance service provides the regular adjustment of the torsion arm link pins on the front axle. After this operation it is absolutely necessary to check the toe-in and the camber of the front wheels.

FRONT WHEEL BEARINGS

The front wheel bearings will occasionally require adjustment. We recommend to refer this operation to an Authorised VW-Service Station, as maladjustment may cause severe damage to the roller bearings.

TRANSMISSION

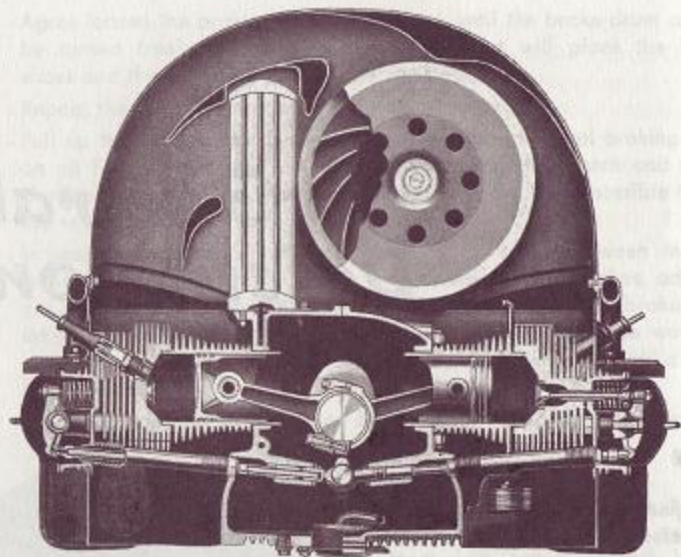
Power from the engine is transmitted to the rear axle through the transmission. The transmission is a four-speed manual gearbox. The gears are operated by means of a shift lever. The transmission is mounted on a differential housing.

General Description

ENGINE

The engine, located in the rear of the car, is mounted in a floating way on the recessed flange of the rubber-cushioned gear box. Two pairs of cylinders are horizontally opposed. Each pair has one mutual cylinder head made of light alloy. The overhead valves are located in the cylinder head and are operated by means of push rods and rocker arms. The exhaust valves are of high nickel-chrome alloy. The short and counter-balanced crankshaft rests in four replaceable special light alloy bearings and is heat-treated at its four points of support. It drives the camshaft by means of helical gears. The connecting rods are fitted with interchangeable steel-backed lead-bronze bearings. The pistons are made of aluminium alloy and are fitted with three piston rings.

A down-draft carburetor produces the fuel and air mixture to supply the cylinders. The engine is equipped with battery ignition. The oil pump of the full pressure lubrication is driven by the camshaft and sucks the oil from the crankcase through a strainer, from where it will reach the points of lubrication via an oil radiator. In cold weather, when the oil is of higher viscosity, an oil pressure relief valve makes it possible for the engine to be lubricated directly, that is, by avoiding the oil cooling system. The air cooling of the engine is done by means of a fan, which is attached to the extended generator-shaft and driven by a V-belt. The fan sucks in air through an opening in the fan-housing, and the air cools the engine by passing through the cylinder fins. An automatic cooling air regulation by thermostat insures well-balanced operating and heating temperatures.



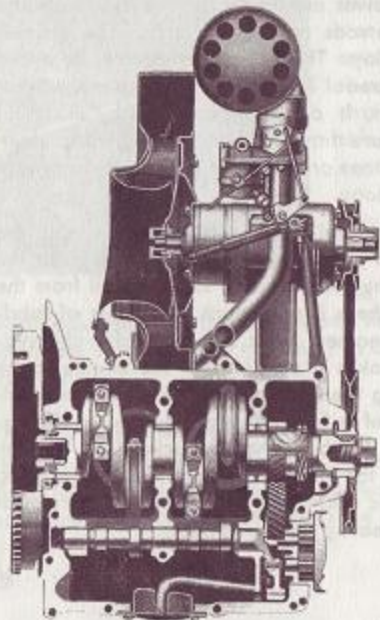
ENGINE

above: Transverse Section

Pistons
Cylinders
Cylinder Head
Valves
Fan Unit
Oil Radiator
Thermostat

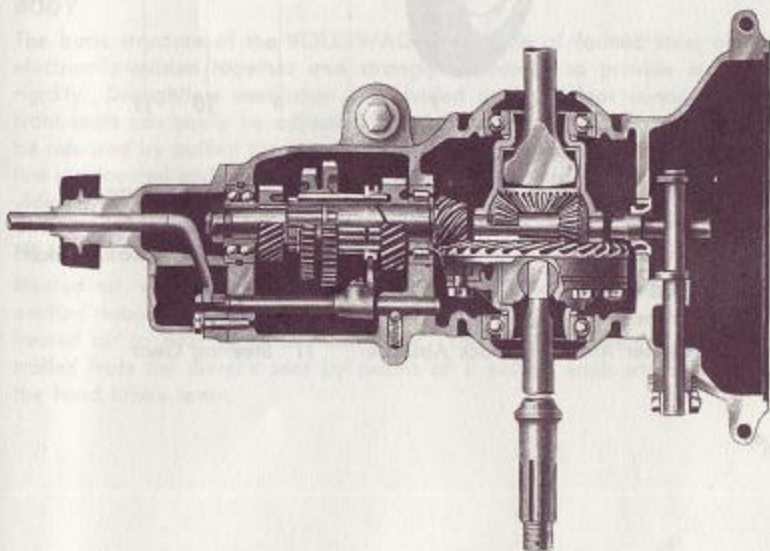
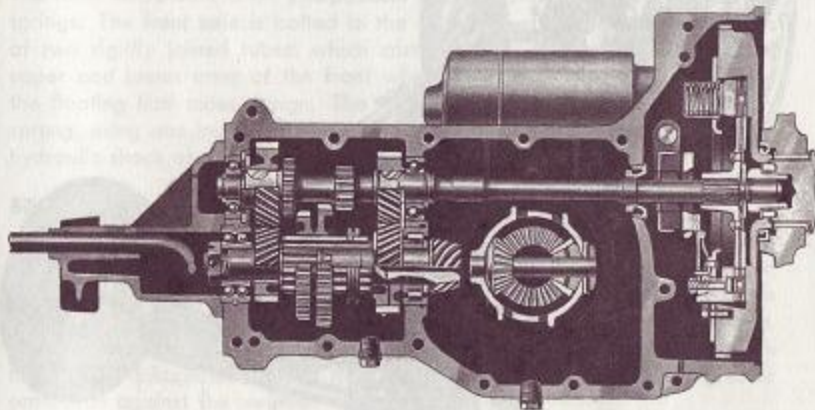
left: Longitudinal Section

Crankshaft
Flywheel
Camshaft
Oil Pump
Oil Strainer
Carburetor

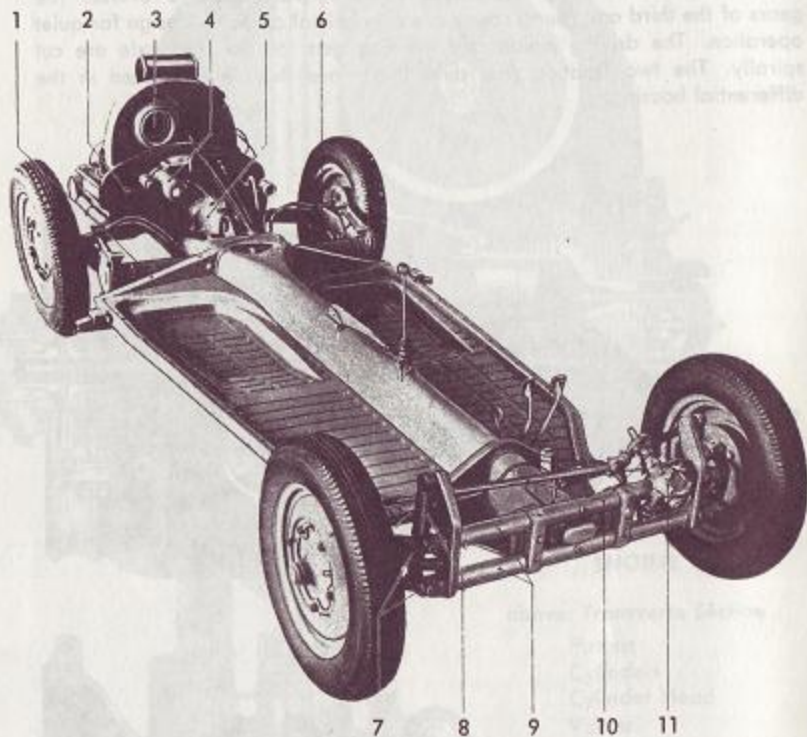


TRANSMISSION

Power from the engine is transmitted to the gears via a dry single-disc clutch. The transmission provides four speeds forward and one reverse. The gears of the third and fourth speed are of a helical cut tooth design for quiet operation. The driving pinion and the ring gear of the rear axle are cut spirally. The two floating rear axle shafts are flexibly supported in the differential housing.



CHASSIS



- | | |
|-----------------------------------|---------------------------------|
| 1 Cross-Tube with Torsion Bars | 7 Suspension Arms |
| 2 Heater | 8 Shock Absorber |
| 3 Air Inlet | 9 Cross-Tubes with Torsion Bars |
| 4 Starter | 10 Track Rods |
| 5 Transmission | 11 Steering Gear |
| 6 Trailer Arm with Shock Absorber | |

CHASSIS

The frame of the VOLKSWAGEN is of pressed steel. The steel floor of the frame is formed in two pieces. These two pieces are spot welded together with the channel-shaped center section of the frame, the forked rear end of which serves to support the transmission and engine assembly. The following units pass through the center of the frame:

Gear-shift rod, hand brake linkage, fuel line, and in conduit tubes the cables of the brakes, clutch, throttle, choke, and warm-air heating unit.

The front suspension is an independent parallel arm type using torsion bar springs. The front axle is bolted to the front end of the frame and consists of two rigidly joined tubes, which carry the torsion bar springs and the upper and lower arms of the front wheel suspension. The rear axle is of the floating half axles design. The rear wheels likewise are independently sprung, using one individual torsion bar spring on each side. Double-acting hydraulic shock absorbers in front and rear prevent rebound.

BRAKES

The Export Model is equipped with direct acting hydraulic brakes operating on all wheels. An additional hand-operated brake is provided for use when the car is parked. The hand brake operates the rear wheel brake shoes through cables. The Standard Model is equipped with mechanical brakes. The foot brake and the hand brake both operate on all wheels through mechanical linkage and cables that pass through conduit tubes for greater protection against the weather.

BODY

The basic structure of the VOLKSWAGEN is made of formed steel panels, electrically-welded together and strongly reinforced to provide maximum rigidity. Draughtless ventilation is provided on both door windows. Both front seats can easily be adjusted. The cable-operated front hood lock can be released by pulling the hood release knob. The fuel tank and the spare tire are located underneath the front hood. A luggage compartment is provided behind the rear seats.

HEATING SYSTEM

Heated air, which is taken from the air flow warmed up by the engine, is emitted through four openings near the floor. For defrosting two ducts direct heated air to nozzles at the windshield. The heating system can be controlled from the driver's seat by means of a pulling knob situated behind the hand brake lever.

Technical Data

ENGINE

Design	4-Cylinder, 4 Cycle, O. H. V.-Type, in rear of car	
Arrangement of Cylinders	Horizontally opposed	
Bore	75 mm. (2.953 In.)	
Stroke	64 mm. (2.520 In.)	
Capacity	1131 cm ³ . (69.014 Cu. In.)	
Compression Ratio	5.8 : 1	
Valve Clearance	Intake 0.15 mm. (.006") Exhaust 0.15 mm. (.006")	} to be adjusted when Engine is cold
Continuous Brake HP.-Rating	24 HP. at 3000 R. P. M.	
Maximum Brake Horsepower	25 HP. at 3300 R. P. M.	
Piston Speed	6.42 Meters per sec. at 3000 R. P. M. (1263 ft. per min.)	
Lubrication	Full Pressure (Gear Pump with Oil Cooler)	
Oil Capacity	Metric — 2.5 Liters U. S. — 5.3 Pints Imp. — 4.4 Pints	
Fuel Pump	Diaphragm Type	
Carburetor	Down-Draft Type	
Cooling System	Air Cooling by Fan, automatic Regulation by Thermostat	
Battery	6 Volts, 75 Ampere Hours Capacity at 10 Hour Discharge Rate	
Starter	Bosch EED 0.4/6 L/4 (.4 HP., 6 Volts)	
Generator	130/6 — 2600 Al 15 P, with Voltage Regulator	
Firing Order	1 — 4 — 3 — 2	
Breaker Points Open	5° before T. D. C.	
Breaker Point Gap	0.4 mm. (.016 In.)	
Spark Plugs	Bosch W 175 T1 and T1 A Beru K 175 b 1/14 Lodge HD 14 Champion L-10 AC 44	} 14 mm.

Spark Plug Gap 0.6 to 0.7 mm. (.024" to .027")

CLUTCH

Design Single Disc, dry
Pedal Free-Play 10 to 20 mm. (3/8—1")

TRANSMISSION

4 Forward Speeds, 1 Reverse, 3rd and 4th Gear Silent.
Gear Ratios First: 3.60 : 1
Second: 2.07 : 1
Third: 1.25 : 1
Top: 0.8 : 1
Reverse: 6.6 : 1

REAR AXLE

Power is transmitted through helically-cut drive pinion and ring gear, via two swinging axles to the rear wheels.
Ratio 4.43 : 1
Oil Capacity of Transmission and Rear Axle Metric — 2.5 Liters
U. S. — 5.3 Pints
Imp. — 4.4 Pints

CHASSIS

Front Two Square Torsion Bar Springs
Springs, Rear One Round Torsion Bar Spring on each Side
Adjustment of Rear Trailer Arms . . . 7° 30'
Shock Absorbers Double Acting Hydraulic Type, Front and Rear
Steering Special Worm Steering Gear with divided Track Rod
Turns of Steering Wheel, Lock to Lock 27/8
Turning Circle 10 Meters (33 Ft.)
Wheels 3.00 D X 16, Disc Wheels
Tires 5.00—16
Inflation Pressure Front: 1.2 at. (17 Lbs. per Sq. In.)
Rear: 1.65 at. (23 Lbs. per Sq. In.)
Wheel Base 2400 mm. (7 Ft. 10.5 In.)
Track Front: 1290 mm. (4 Ft. 3 In.)
Rear: 1250 mm. (4 Ft. 1.2 In.)

Camber of Front Wheels 0° 40'
 Toe-in 2 to 4 mm. (0.08 In. to 0.16 In.)
 Caster 2° 30'

BRAKES

Foot Brake

Export Model Hydraulic Brake, operating on all four
 Wheels
 Standard Model Mechanically Operated on all four
 Wheels

Hand Brake

Export Model Mechanically Operated on rear Wheels
 Standard Model Mechanically Operated on all four
 Wheels

DIMENSIONS AND WEIGHTS

Length 4050 mm. (13 ft. 4 ins.)
 Width 1540 mm. (5 ft. 1/2 in.)
 Height 1550 mm. (5 ft. 1 in.)
 Road Clearance 212 mm. (8.35 ins.)

	Sedan	Sedan with Sliding Roof	Convertible
Net Weight	705 kg.	715 kg.	775 kg.
Weight incl. Spare Wheels and Accessories	730 kg.	740 kg.	800 kg.
Maximum Load	380 kg.	380 kg.	360 kg.
Total Weight	1110 kg.	1120 kg.	1160 kg.

PERFORMANCE

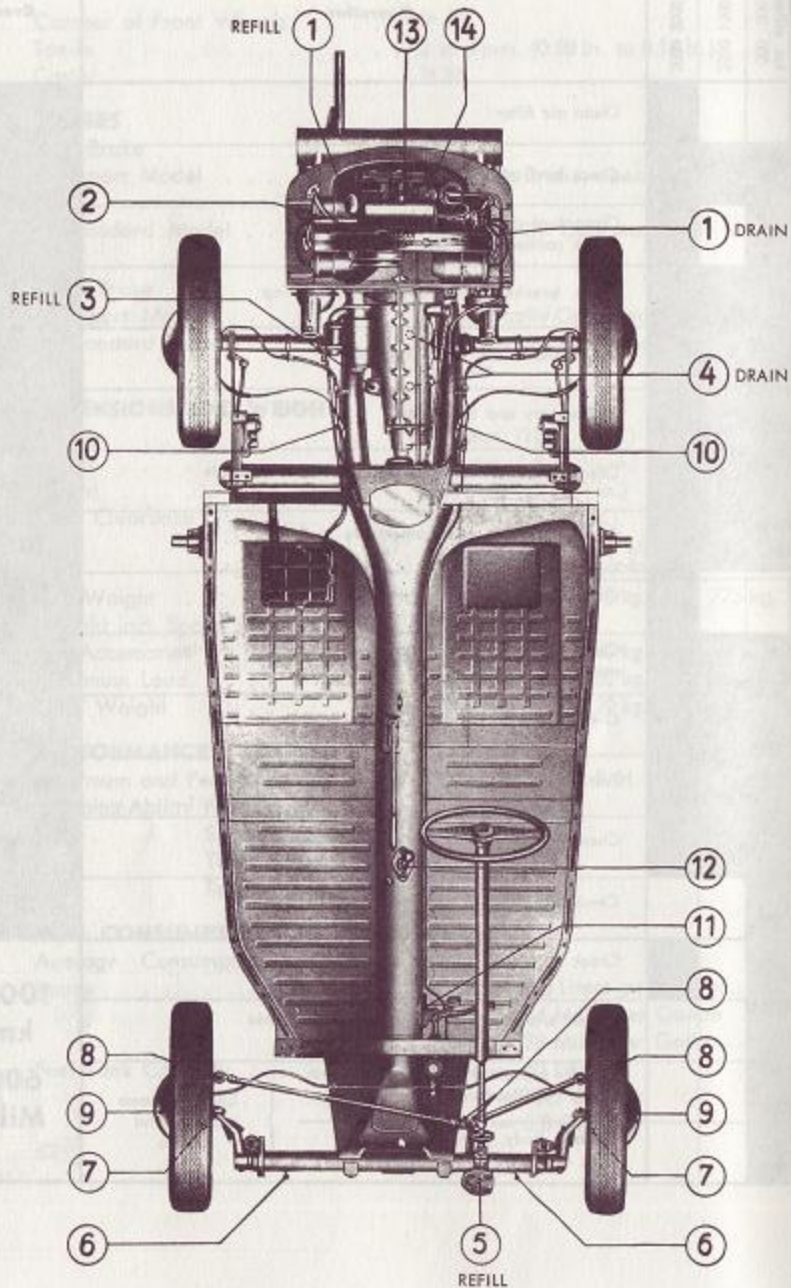
Maximum and Permanent Speed . . . 100 Km./h. (65 M. P. H. clocked)
 Climbing Ability First Speed 32% = 18°
 Second Speed 18% = 10°
 Third Speed 9% = 5°
 Top Speed 5% = 3°

FUEL CONSUMPTION

Average Consumption on normal
 Roads Metric — 7.5 Liters per 100 Km.
 U. S. — 34 Miles per Gallon
 Imp. — 38 Miles per Gallon
 Fuel Tank Capacity Metric — 40 Liters
 U. S. — 10.5 Gallons
 Imp. — 8.8 Gallons

MAINTENANCE CHART

Break-in period	Operation			Every
	km. miles 500 300	2500 1500	5000 3000	
				5000 km. 3000 Miles
			Clean air filter	
			Check and adjust fan belt	
			Clean fuel system Check carburetor adjustment	
			Check breaker points and ignition timing	
			Check and adjust valve clearance	
			Test battery and add water	
			Check operation of lights, signals and instruments	
			Check generator and connections	
			Check and set sparks plugs	
			Check front wheel bearings, front suspension, steering, and toe-in	
			Check tire pressure and tighten wheel studs	
			Test brakes and check brake fluid level	
			Check tightness and effect of shock absorbers	
			Check clutch pedal clearance	
			Check automatic cooling air regulation	10000 km. 6000 Miles
			Inspect transmission and engine for oil leaks	
			Engine, especially exhaust, carburetor, intake manifold and fuel pump Chassis, body, front axle, rear axle, and steering	



LUBRICATION CHART

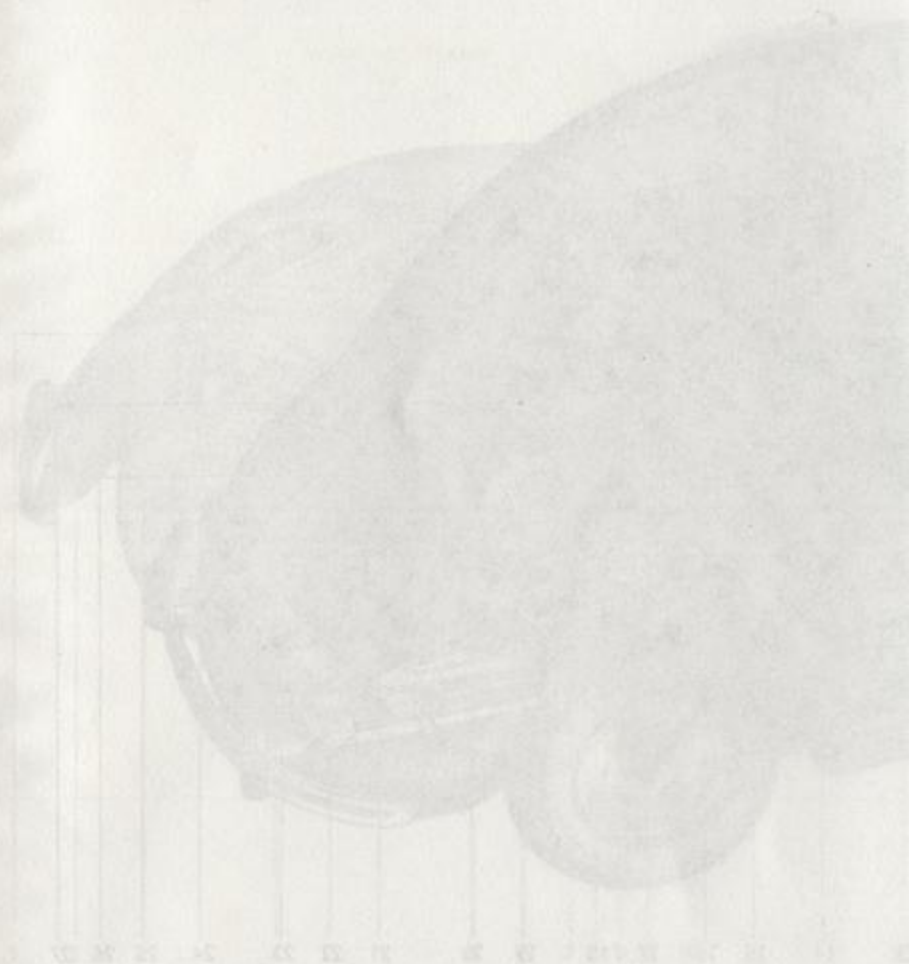
Break-in period km. miles 500 300 1500 900 2500 1500 5000 3000	No.	Lubrication points	Mark	Every
	1	Engine: change oil	M	5000 km. 3000 Miles
	6	Front axle tubes	F	
	7	King pins	F	
	8	Tie rod joints	F	
	3	Transmission: check oil level	G	10000 km. 6000 Miles
	5	Steering gear: check oil level	G	
	9	Front wheel bearings	F	
	10	Brake cables	F	
	11	Foot pedal bearing	F	20000 km. 12000 Miles
	13	Carburetor controls	M	
	14	Ignition distributor cam door and hood locks	F	When cold season begins
	2	Engine: clean oil strainer	F	
	12	Gear-shift lever	F	
	4	Transmission: change oil	G	
		Cable conduit tubes	F	

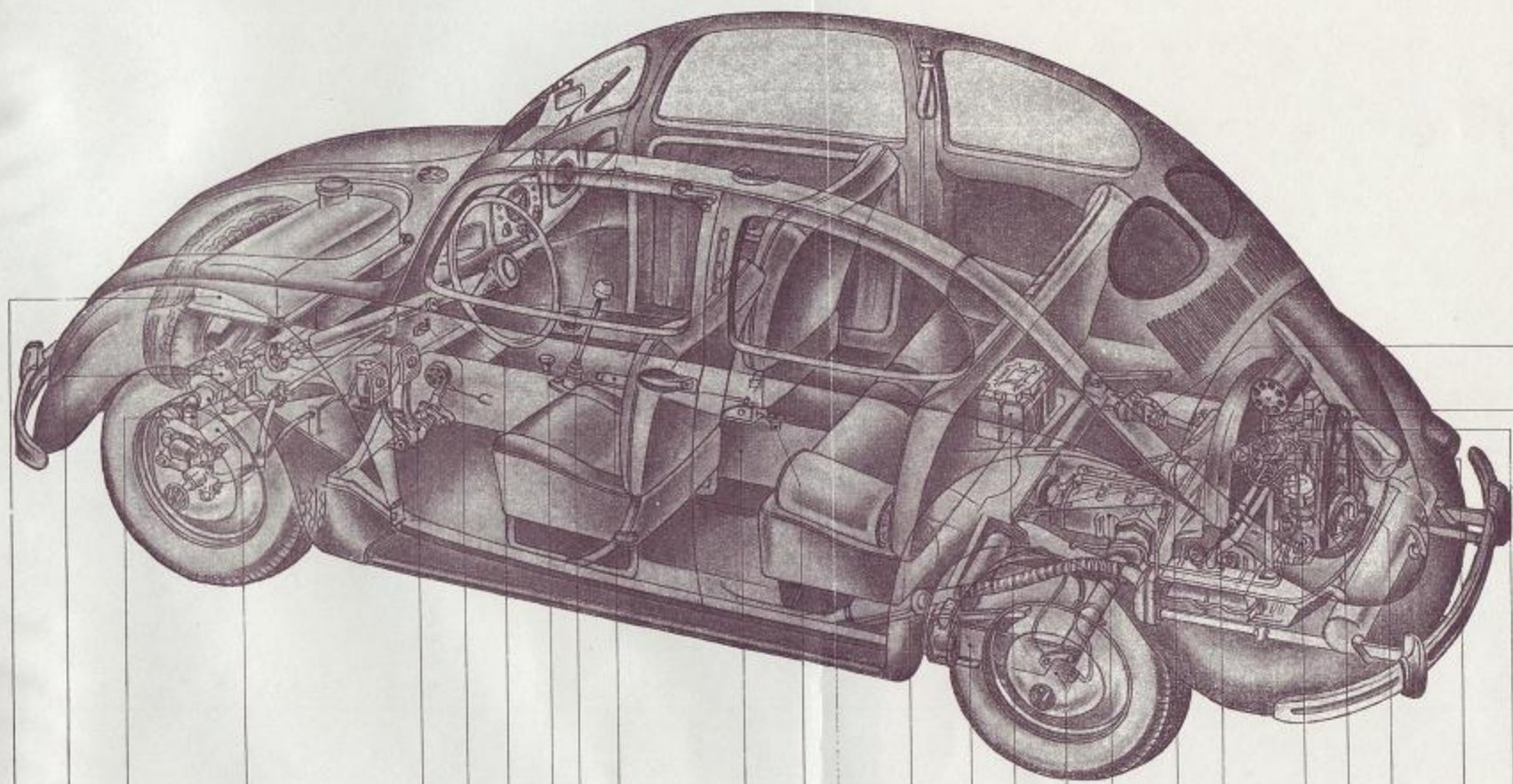
LUBRICANTS

Lubricant	Lubrication points	Specifications												
Engine oil	Engine	<table border="0"> <tr> <td>C</td> <td>F</td> <td>SAE 30</td> </tr> <tr> <td>+30°</td> <td>+90°</td> <td></td> </tr> <tr> <td>0°</td> <td>+32°</td> <td>SAE 20</td> </tr> <tr> <td>-20°</td> <td>+10°</td> <td>SAE 10</td> </tr> </table>	C	F	SAE 30	+30°	+90°		0°	+32°	SAE 20	-20°	+10°	SAE 10
C	F	SAE 30												
+30°	+90°													
0°	+32°	SAE 20												
-20°	+10°	SAE 10												
Transmission oil	Transmission case, steering gear	SAE 90												
Universal grease	Front axle, tie rod ends, front wheel bearings, brake cables, pedal bearing, ignition distributor cam, door and hood locks	Anti-freeze, water-repellent grease												

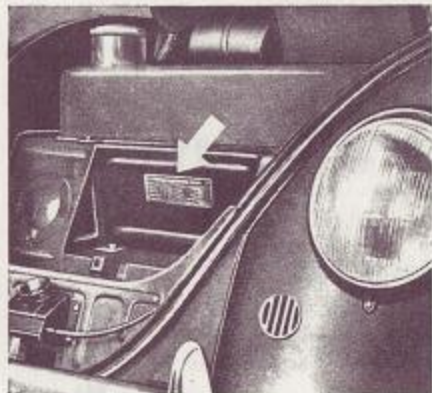
PHANTOM VIEW

- 1 - Fuel Tank
- 2 - Steering Gear
- 3 - Shock Absorber
- 4 - Front Axle
- 5 - Foot Pedal Assembly
- 6 - Knob for Front Hood Lock
- 7 - Fuel Cock
- 8 - Choke
- 9 - Hot Air Outlet
- 10 - Hand Brake Lever
- 11 - Frame Tunnel
- 12 - Heat Control
- 13 - Hot Air Outlet
- 14 - Heater Tube
- 15 - Trailer Arm
- 16 - Battery
- 17 - Rear Axle
- 18 - Transmission Case
- 19 - Starter
- 20 - Fan Housing
- 21 - Fuel Pump
- 22 - Distributor
- 23 - Oil Level Gauge
- 24 - Ignition Coil
- 25 - Carburetor
- 26 - Generator
- 27 - Shock Absorber

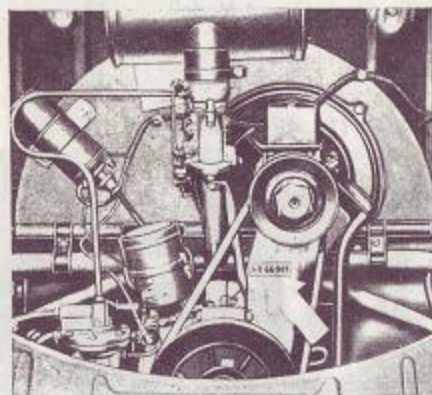




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In the documents which come with your car you will find, among other data, details regarding the model, year of construction, and chassis and engine numbers of the vehicle. The Police or Traffic Department will see to it that the information on the papers corresponds exactly with that on your car. Delay and confusion can often be avoided, if the correct information on these numbers is furnished on parts orders and correspondence.

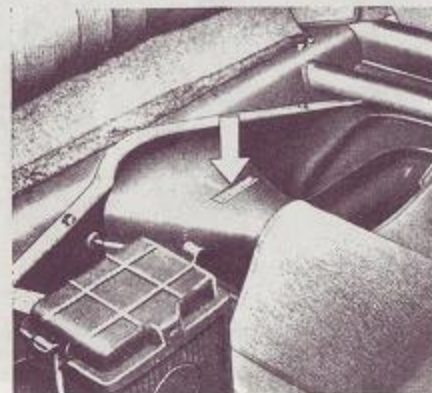


The MODEL DETAIL PLATE

is found in the location of the spare tire, underneath the front hood.

The ENGINE NUMBER

is stamped on the support of the generator on the crankcase.



The CHASSIS NUMBER

is found on the backbone of chassis underneath the rear seat.

6

Operating Instructions

BEFORE YOU DRIVE AWAY,

check oil level of engine, tension of fan belt, efficiency of brakes, tire pressure, and quantity of fuel in the tank. This will insure reliable and satisfactory performance of your car.

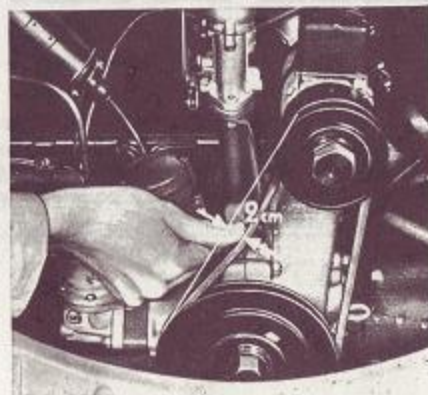
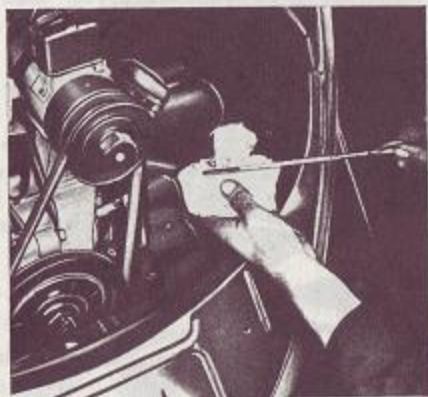
ENGINE OIL LEVEL

The oil level should be checked while the engine is not running. The oil level should be kept up to the upper mark and should never be permitted to fall below the lower mark on the level gauge.

It is recommended that a time-proven trade-mark brand of oil be selected. Mixtures of various types of oil usually do not produce the high results obtained by constant use of one high-quality lubricant.

FAN BELT

The fan belt drives the cooling system of the engine. Perfect condition and correct tension of the belt insure its long life and adequate cooling of the engine. Checking is very simple: The belt, when slightly pressed with the thumb, must yield approximately 2 cm. (approx. 1 in.). No traces of excess use, such as frayed edges, should be perceptible.



7

FUEL TANK

The tank has a capacity of 40 liters (10.5 U.S. gall., 8.8 Imp. gall.), sufficient for a drive of well over 500 kilometers (300 miles). Under normal conditions, the fuel shut-off cock should be set at position "A", while the car is in operation. If the motor begins to "stutter", as a result of lack of fuel, just switch the cock to "R". A fuel reserve of 5 liters (1.3 U.S. gall., 1.1 Imp. gall.) will then last for a further drive of about 70 kilometers (45 miles).

It is important to re-set the cock at position "A" when refilling the tank, otherwise there will be danger of running out of fuel on the road.

THE TIRES

deserve and require your special attention. The smooth driving and the road-holding of your VOLKSWAGEN will greatly depend on their condition. Maintaining correct tire pressure and observing proper operation of the car are the most important factors in obtaining maximum tire life. Check regularly and keep tires inflated to the following pressures, varying in accordance to load:

Front 1.2 — 1.3 at.
= 17.1 — 18.5 lbs/sq. in.

Rear 1.6 — 1.7 at.
= 22.7 — 24.2 lbs/sq. in.

Do not forget to replace the valve dust covers after this inspection.



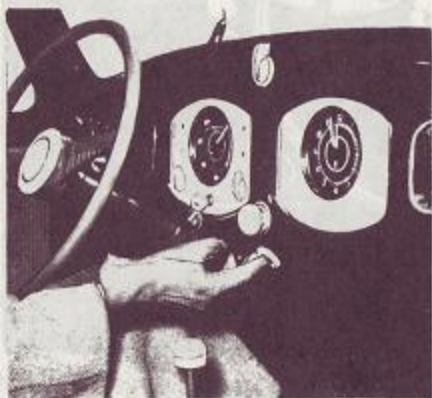
THE BRAKES

should be checked before the car starts on a trip by gradually pressing down on the brake pedal while the car is in motion to ascertain proper functioning.

STARTING THE ENGINE

is easy, because you are now familiar with the various controls and instruments. However, make sure that the gear-shift lever is in neutral position before pressing the starter button.

Insert ignition key in the lock and turn it to the right. The red charge-control light and the green light for the oil pressure will light up. If the engine is cold, just pull the choke control knob marked "L", and press the starter button until the engine starts. Then push in the knob "L" again, while at the same time feeding some gas. Thereby the two control lights, as mentioned above, will go out. Do not press down either the clutch or the gas pedal, while starting the engine, although this is recommended for some other cars.



If the engine does not start at once, just repeat the procedure a few times, allowing a short interval between each successive attempt. However, do not overlook the fact that the battery is being strained heavily by continuously trying to start. If it does not start in a reasonable time, the real cause should be determined.

When the engine is warm, the choke should not be pulled. Instead, feed some gas, and the engine will start readily.

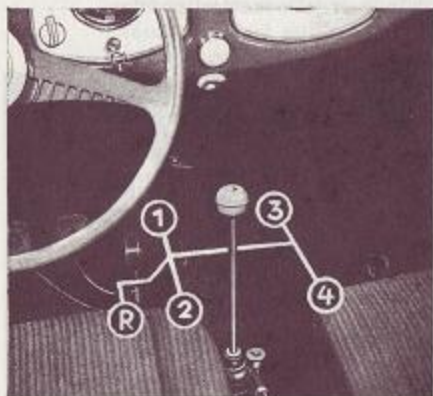
Under cold weather conditions, hold out the choke control knob longer to allow the engine to warm up. If you observe the rule of using adequately thin winter oil in severe cold, you will never encounter any difficulties when starting your engine.

CAUTION!

Be careful when starting the engine inside your garage. See to it that the door and windows are open so that the exhaust fumes can escape. They contain the colorless, tasteless and odorless, yet extremely poisonous carbon monoxide gas.

DRIVING AWAY

is extremely easy, if you observe the following:



- 1 - Press down the clutch pedal as far as possible. Keep it in that position.
- 2 - Shift to the first gear. Release the hand brake.
- 3 - Engage the clutch by gently removing your foot from the pedal, while simultaneously pressing down the gas pedal. The car rolls!
- 4 - Gradually increase the pressure on the gas pedal and remove your foot completely from the clutch pedal, as the clutch is now fully engaged.

Shifting to second gear is equally simple:

- 1 - Take your foot off the gas pedal, while simultaneously pressing down the clutch pedal.
- 2 - Shift gear lever into second position.
- 3 - Again step on the gas and engage the clutch by taking your foot off the pedal gently and gradually.

You now know how to "shift gears", and may at will shift to third and fourth positions. You will have noticed by now that on each shifting operation the gas and clutch pedals are operated simultaneously, but in opposite directions. It is the coordination of these simultaneous operations that brings skill in shifting gears.

To engage the reverse gear, first press down the gear lever vertically, move it to the left and pull it towards the rear.

YOU WILL SAVE AND PRESERVE THE ENGINE

and you will drive in a more economical way if you do not let the engine race in each particular gear by feeding too much gas. Even after the car has been broken in, you should observe the following minimum and maximum speeds:

First Gear	0—20 km./h. (0—12 m. p. h.)
Second Gear	10—40 km./h. (6—25 m. p. h.)
Third Gear	25—65 km./h. (15—40 m. p. h.)
Top Gear	40—100 km./h. (25—60 m. p. h.)

SHIFTING TO LOWER GEAR

This is what you should do in close city traffic, or with sharp turns ahead of you, or when driving up-hill.

- 1 - Release gas and depress clutch pedal.
- 2 - Place gear shift lever in neutral position.
- 3 - Release clutch pedal and at the same time depress gas pedal momentarily.
- 4 - Depress clutch pedal and shift to lower gear.
- 5 - Release clutch pedal steadily and step on gas pedal simultaneously.

Of course, this goes much more quickly in actual operation than by describing it here. Perhaps it should be pointed out that the intermediate feeding of gas as described in the third step of the operation is for the purpose of obtaining the same ratio of speed for the two cogwheels of the lower gear. This will result in an easy and silent engaging of the gears.

After a short period of practice, you will take pleasure in the correct handling and shifting of the gears and obtain the utmost satisfaction from the efficient performance of your new VOLKSWAGEN. Under no circumstances should you be afraid to shift to lower gear, or even try to avoid shifting occasionally by merely letting the clutch "slip" in a partly disengaged position.

Moreover, the clutch pedal should never be used as a foot-rest while driving your car!

ECONOMICAL DRIVING

is one of the outstanding features of your car. However, whether or not a few extra miles will be yielded from each gallon will depend on the manner in which you handle the car and shift gears. When accelerating, step on the gas pedal slowly and only to such an extent as is necessary for the intended speed. Do not press the gas pedal all the way down in order to obtain a higher speed on steep hills or grades. If you persist in such a wrong practice, you will find that you have merely wasted gas. Therefore, always shift to the lower gear when necessary, for you will save no gas by driving slowly in high gear, and will only subject the engine to wear and strain.

Perhaps you are aware of the fact that air resistance is an obstacle for all high-speed vehicles. Due to the simple and sweeping lines of your VOLKSWAGEN, the air resistance is relatively low, but it should be remembered that high road speed always involves a greater fuel consumption.

BRAKES

The brakes should be applied sparingly. The inexperienced driver can be recognized by the too frequent lighting-up of the stop light. By removing your foot from the gas pedal, the engine compression will serve as a brake, thus saving fuel and preventing premature wearing of tires and brakes. Don't drive too fast and then skid to a stop, but drive at a moderate speed, commensurate with the traffic, and your car will perform most economically. To press down the brakes suddenly can only be justified when danger is ahead.

Operate your brakes especially gently when the road is wet or covered with ice. Sudden braking of the wheels will result in skidding of the car.

Here is one of the fundamental rules:

Use your brakes before, not while making a turn!

When driving down-hill, make use of the braking capacity of the engine compression by shifting to that gear which you would use in driving up-hill. You will save and preserve the brakes if you use them only to control the speed occasionally, and at the same time you will attain a higher degree of safety.

STOPPING THE CAR

Take your foot off the gas pedal and operate the brakes gently. Shortly before the car comes to a full stop, release the clutch and place the gear shift in neutral position. The engine continues to idle.

If you wish to turn off the engine, merely switch the ignition key to the left.

Breaking-in Period

THE LIFE OF YOUR CAR,

its performance, and its operation will depend on the way you break it in. Therefore, you should observe the following points.

THE ENGINE IS NOT GOVERNED

Do not race the engine. In the case of severe frost, it is a good suggestion to let the engine run at fair speed for approx. half a minute before driving away.

THE FIRST 500 KILOMETERS (300 MILES)

are of particular importance to the life of your car. Don't believe that your engine will be saved and preserved most when it is operated at low speeds only. The new engine requires air for cooling, which is only attained at an adequate number of revolutions. It is overloading and overheating that are harmful to the engine, and not the number of revolutions.

Your engine will be maintained under the most favorable conditions if you change speed and shift gears when circumstances require. Do not feed too much gas, and certainly not more than is necessary to attain the breaking-in speed. Lift your foot from the gas pedal occasionally, while the clutch remains engaged, thus allowing the car to roll along freely before accelerating again.

Super-highways are the least suitable for breaking-in your car. Nothing could be more detrimental to the engine than driving along for long periods in top gear and at low speeds.

THE BREAKING-IN PERIOD

does not imply inconvenience as restrictions are only imposed on the max. speed in top gear.

1 st Gear	2 nd Gear	3 rd Gear	4 th Gear
up to 20 km./h. (12 m. p. h.)	up to 45 km./h. (30 m. p. h.)	up to 70 km./h. (45 m. p. h.)	up to 80 km./h. (50 m. p. h.)

During the breaking-in period of approx. 2000 km (1250 miles) the car may be fully speeded up to the given limits of the 1st, 2nd and 3rd gear when starting and accelerating. After the breaking-in period, the above speeds may be maintained over longer distances and the speed in top gear increased to 100 km./h. (65 m. p. h.).

Please make sure that the gas pedal is pressed down not more than half its travel. This position is termed "Half Throttle", whereas a fully depressed gas pedal occupies the "Full Throttle" position. At half throttle the engine is only moderately subjected to load at a comparatively high number of revolutions; this means a quick breaking-in under most favorable conditions.

WHEN DRIVING UPHILL

always change gear as soon as the speed drops and approaches the speed limit of the lower gear at half-throttle position. During the breaking-in period, never allow the engine to "labor" in any gear and expect it to pick up speed on feeding more gas.

AFTER 500 AND 1500 KILOMETERS (300 AND 900 MILES)

the car should be taken to one of our Service Stations for inspection. They not only change the oil and flush the engine, but the entire car will be checked following the indications of the Service Booklet.

While the car is being broken in, an oil of low viscosity is of high value. If you don't prefer a good breaking-in oil, use an oil of the specifications indicated on the Lubrication Chart. Choose a well-known and proved trademark oil and continue to use it — this will pay off in the long run.

AFTER 2000 KILOMETERS (1250 MILES)

your VOLKSWAGEN is prepared for unrestricted performance and in best condition, if you have followed the above recommendations. From now on you may make full use of the advantages you are offered by your car: — quick acceleration, high long-distance speed, and an amazing hill-climbing ability.

Practical Driving

WATCH THE ROAD

closely while driving. As to the various manipulations of levers, switches and controls, you by now are able to operate them automatically. Furthermore, your VOLKSWAGEN on its own accord will "tell" you when it needs attention.

GENERATOR AND COOLING

are controlled simultaneously by a red light. The light will go on when the ignition is switched on and when the engine is idling shortly. The light will go out when you step on the gas.

CAUTION! If the control lamp lights up while you are driving the car, the fan belt may be broken. Bring your car to a stop, and find out what is wrong, for when the belt is broken, the cooling is disrupted and the generator no longer charges.

OIL PRESSURE

The oil pressure of your car is as important as the oil level, which you have already checked. When the ignition is switched on, the Green Oil Pressure Control Lamp will light up. The light will go out when the engine is started and the oil pressure increases.

CAUTION! If the lamp lights up during the ride, the chances are that the oil circulation has been interrupted, which means that the lubrication of the engine has ceased. Stop at once and check the level of the oil before you consult a Service Station. An occasional lighting up of the lamp with the engine warm and at low speed does not indicate trouble, if it goes out again as the speed increases.

Red Light

Green Light

DIRECTION INDICATORS

The direction signals lie outside the driver's view. However, the red indicator control lamp will serve as a reminder in case you have forgotten to turn the signals off.

Red Light

HEADLIGHTS

The country (upper) beam of your headlights throws glare into the eyes of oncoming drivers. You know yourself how unpleasant and dangerous this is. For this reason, be considerate! The blue control light will tell you when the upper beam is switched on. The traffic (lower) beam is obtained by pressing the foot switch.

Blue Light

SAFETY FIRST

Safety for yourself, and safety for others, this is what counts most! Your VOLKSWAGEN is a car that "hugs" the road in an excellent way, and does not sway when taking a turn. Your car has an extraordinary capacity for acceleration.

Yet, the feeling of security and safety which you will acquire after a few miles should not tempt you to become careless. Therefore, adjust the speed of your car to the conditions of road, traffic and weather, and always be ready to bring your car to a stop when it is necessary. Be particularly careful when driving on wet or icy roads, for even a VOLKSWAGEN is apt to skid when not driven carefully under such conditions.

PASSING OTHER CARS

Pass other vehicles with consideration. Always be sure that the road is clear ahead of you, and look out for cars approaching you from the opposite direction. A brief look in your rear view mirror will tell you whether another car is about to pass you from behind. And here is another warning: Never try to pass a car when approaching a curve, where vision is not clear, and never pass a vehicle at the crest of a hill, or at crossroads! You never can tell what lies ahead of you!

Be fair and do not step on the gas when another car tries to pass you. You will endanger your life and others!

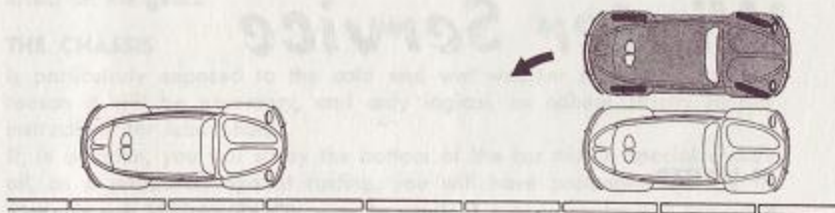
STOPPING YOUR CAR TEMPORARILY

When stopping your car in front of a traffic light or railroad crossing, do not wait for free passage with the clutch pedal pressed down and the gear-shift lever in position. Shift to first gear shortly before moving on again, it will preserve the clutch!

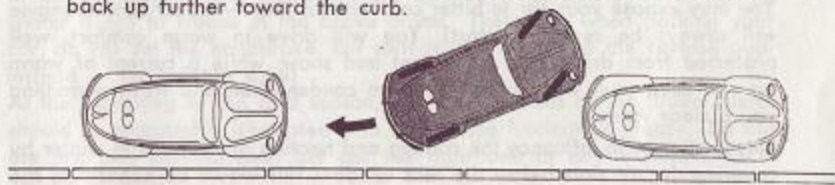
PARKING YOUR CAR

in a space between two other cars that are parked at the curb will be fun for you if you heed the following advice:

Stop your car even with the car in front of the space. Turn the steering wheel sharply to the right and back your car slowly into the gap.



When the front bumper of your car is even with the rear bumper of the car ahead of you, turn the steering wheel fully to the left, and back up further toward the curb.



Now turn the steering wheel again to the right and pull up a little bit, until both ends of the car come as close to the curb as possible.



When parking on a steep grade, set the handbrake so as to keep the car from rolling. As a precautionary measure, it is advisable to engage first or reverse gear in addition to the handbrake. And do not forget to take the key out of the ignition lock before you leave your car!

Prior to locking the left-hand door secure the right door by raising the inside door handle.

Do not forget to shut the fuel cock when parking on a grade with the rear end of the car downwards.

Winter Service

IN WINTER

there are two advantageous features of your VOLKSWAGEN that you will appreciate most:

AIR COOLING AND HEATING.

You may expose your car to bitter cold without fear:—its air-cooled engine will always be ready to start! You will drive in warm comfort, well protected from drafts and from sleet and snow, while a current of warm air will keep your windshield free from condensation and frost, permitting you a clear view.

Never attempt to influence the cooling and heating of your car in winter by covering the air slots below the rear window. This would be harmful to the engine, as the drawing in of fresh air for the carburetor and the heating would be seriously affected. The cooling air is already efficiently regulated by the thermostat.

The increased stress that your car has to stand in winter because of frost and dampness can be easily dealt with if you observe the following:

ENGINE OIL

of the specification SAE 20 will remain thin in cold weather and will permit easy starting of the engine. At lasting frost under -20°C (-4°F), the use of engine oil SAE 10 is recommended.

In cold weather allow the engine to idle for a minute before driving, to insure correct oil circulation. Don't race the engine in severe frost to obtain a quick start.

Should you use your car mainly in city traffic and over short distances, it is advisable to have the oil changed at shorter intervals, say after every 1250 km. (800 miles).

TRANSMISSION OIL

serves its purpose in any season and needs, for this reason, no particular attention or change. You will find from experience that during the winter months shifting to higher gears must be done with shorter pauses, until the transmission oil has warmed up, because the stiff oil has a higher braking effect on the gears.

THE CHASSIS

is particularly exposed to the cold and wet weather in winter. For this reason it will be necessary, and only logical, to adhere strictly to our instructions for lubrication.

If, in addition, you will spray the bottom of the car with a special chassis oil, as a protection against rusting, you will have prolonged the life of your car.

THE BRAKES

of all automobiles are exposed more or less to splashing water that in winter is apt to freeze in the brake drums. Therefore, when parking your car, do not set the handbrake, but shift to the first or to the reverse gear instead — for safety's sake!

At the beginning of the cold season, the conduit tubes of the brake cables should be thoroughly lubricated with anti-freeze lubrication grease. Do not use just any car-lubricant, but get the right one at any VOLKSWAGEN Service Station!

THE BATTERY

has to meet higher requirements in winter than in warmer seasons due to the increased consumption of current when starting the engine and using the lights at night. Besides this it is a characteristic feature of any battery that its efficiency decreases at lower temperature.

Therefore, have your battery checked regularly, and you will never press the starter button in vain!

NON-SKID CHAINS

You will need non-skid chains only when the roads are covered with snow. Without such chains, the rear wheels of your car are apt to spin, and applying the brakes may result in the car's skidding. Have the non-skid chains adjusted to the wheels, if you wish to avoid loss of time and inconveniences later on!

When driving on long stretches that are free from snow, the chains should be removed to prevent excessive wear of both chains and tires.