





#### **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.

## Volkswagen Owner's Manual

1968 Models

#### Wassesty Vaugher

for the new VW at

Type: 361/73901 Chassis No. 361/73901

in accordance with the terms of warranty related content



The warranty commences at the date the VW auto-

viz. on 3-18-68

and covers a period of 24 months of the period before the vehicle has been driven 24 000 miles, whichever event shall first occur. Should any warrenty claim esise, you are requested to submit this voucher to your VW Dester.

VOLESWAGEN OF AMERICA, INC.

Nak.

No warranties, express or implied, as to Volkswagen vehicles sold in the United States are made either by Volkswagen of America, Inc. or by the manufacturer or by the selling dealer, except the following warranty by Volkswagen of America, Inc.

## Warranty for new Volkswagen vehicles

This warranty is issued by Volkswagen of America, Inc. ("VWoA"), the authorized United States importer of Volkswagen vehicles.

Free repair or replacement in United States and Canada of defective parts for 24 months or 24,000 miles 1. VWoA warrants that every Volkswagen vehicle imported by VWoA and sold as a new vehicle to a retail customer by an authorized United States Volkswagen dealer will be free from defects in material and workmanship under normal use and service for 24 months after the date of delivery of the vehicle to the original retail customer or until the vehicle has been driven 24,000 miles, whichever comes first. This warranty is limited, however, to the following: If any part of the vehicle becomes defective during this period under normal use and service and the vehicle is brought to the workshop of any authorized Volkswagen dealer in the continental United States, Hawaii or Canada, the dealer will, without charge, either repair the defective part or replace it with a new or factory reconditioned part.

Maintenance and validation by owner required to keep warranty in effect

- 2. In order to keep this warranty in effect, the owner must do two things:
- FIRST: The owner must have the vehicle maintained and serviced as prescribed in the Volkswagen Maintenance Schedule. (See page 53).

SECOND: Every twelve months during the warranty period the owner must obtain from an authorized United States Volkswagen dealer a Validation Stamp on the Maintenance Card to what the vehicle has been maintained and serviced in accordance with the Volkswagen Maintenance Schedule. Validation will be made upon presentation of bills or other evidence sufficient to satisfy the dealer that the required service and maintenance have been performed. The validated Maintenance Card must be submitted whenever a claim is made under this warranty.

Items not covered by warranty

- 3. VWoA's warranty does not cover:
- (i) Defects, damage or deterioration due to normal use, wear and tear or exposure; (ii) normal maintenance services, such as fuel system cleaning and wheel, brake or clutch adjustments; (iii) the replacement of service items, as, for instance, spark plugs, ignition points, V-belts, wiper blades or brake and clutch linings; (iv) deterioration of upholstery, soft trim and appearance items; (v) damage or defects due to misuse, alteration, negligence or accident; and (vi) damage or defects due to the repair of the vehicle by someone other than an authorized Volkswagen dealer or the installation of parts other than genuine Volkswagen parts.

#### Warranty outside United States and Canada

4. If the vehicle is brought to an authorized Volkswagen workshop outside the continental United States, Hawaii or Canada, VWoA's warranty will not be applicable, and defective parts will be repaired or replaced free of charge with new or factory reconditioned parts only within the terms and limitations of the warranty for new Volkswagen vehicles in effect in the country where such authorized Volkswagen workshop is located.

#### No other warranties made

5. This warranty is in lieu of all other express or implied warranties of VWoA, the manufacturer and the selling dealer, including any implied warranty of merchantability or fitness for any particular purpose. Neither VWoA nor the manufacturer assumes, or authorizes any person to assume, on its behalf, any other obligation or liability.

## Let us explain the warranty . . .

Volkswagen of America, Inc. is proud of the quality of automobiles it imports. It warrants new vehicles for a period of 2 years or 24,000 miles from the date of purchase, whichever comes first. In general the complete vehicle including battery and tires is covered under the provisions of the Volkswagen New Vehicle Warranty. It will be honored by any Authorized Volkswagen Dealer in all 50 States, the District of Columbia and Canada.

This warranty is transferable if the ownership of the vehicle changes within the above period.

In order to keep the warranty in force, you as the owner of the vehicle have certain responsibilities. It is important that the vehicle be maintained properly. To facilitate record keeping, this booklet provides on pages 55 to 57 space for listing maintenance services and oil changes as they are performed. Maintenance services should be performed by Authorized Volkswagen Dealers. They offer with their factory-trained Volkswagen mechanics and special tools, fast, efficient service in accordance with Volkswagen quality standards.

Validation is a requirement of the Volkswagen New Vehicle Warranty. One year after the date of delivery, the warranty must be validated for the second year. This can be done at any Authorized Volkswagen Dealership in the USA or Canada. For that purpose, you should present to the Authorized Volkswagen Dealer the maintenance record for your vehicle. Provided that maintenance services or oil changes were performed in accordance with Volkswagen specifications, dated bills of other than Authorized Volkswagen Dealers will be accepted as proof that these services were performed on time.

Not all repairs, adjustments and replacements, however, are the result of defects in material or workmanship. There are other circumstances beyond the control of the manufacturer that might make a workshop visit necessary. These depend mainly on where you drive and how you drive. They would include weather and atmospheric conditions, varying road surfaces, individual driving habits and vehicle usage.

#### For example, you are required to pay for the following:

#### Maintenance services and oil changes

Wheel alignment and wheel balancing - the frequency of such services depends on driving conditions such as rapid starts and stops, tire skidding, hitting pot holes and curbs, etc.

Mechanical adjustments – including brake, clutch, door locks are required as a matter of normal operation of a motor vehicle. This protects you against early or expensive replacements.

Brake and clutch linings – are directly affected by driving habits and use. The replacement of these linings and the reconditioning of brake drums should be performed whenever necessary.

Spark plugs and ignition points - are subject to wear. Periodic replacements ensure you of maximum engine performance and gasoline economy.

Wiper blades - life expectancy will vary widely depending on climatic conditions and extent of use. You are the best judge to decide when they should be replaced.

Light bulbs and fuses - are service items.

Paint, chrome, convertible top, trim and other appearance items — are affected by normal wear and exposure. Proper care of these items can add to their appearance and durability. (Imperfections are normally appearent during New Vehicle pre-delivery inspection. For your protection, please report any imperfection to your Dealer immediately after you notice it.)

Tires and batteries - are subject to wear. If there is a defect you pay only for the amount of use you have gotten. An adjustment for tires is based on the remaining tread depth, for batteries on time used based on 36 months of service. This is known as the pro-rata method of adjustment.

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## **Getting acquainted**

#### It is advisable

to read this Owner's manual carefully. You will then get to know your new car quickly and will be able to start off on your trip with complete confidence. You will notice, your Volkswagen has many features designed with your safety in mind.

The first part of this manual deals with the operation of your Volkswagen. Everything about winter driving, tips on care of the vehicle and numerous points on carrying outsmall repairs and adjustments are given in the second half. It further contains information on lubrication and maintenance and some interesting technical data.

Additionally, this book contains the warranty voucher and the terms of warranty as well as a punchoard for the free-of-charge maintenance service and a maintenance schedule. An easy-to-use maintenance record provides a stamping field, so you can tell at a glance when a maintenance service is due. The stamps in the squares show that the oil changes and maintenance services have been carried out regularly.

### Only one key

is required to open the doors and 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 Volkswagen has separate front seats which are built so that you can alter seat position and backrest rake to suit your require-

ments. This is quite simple – just lift the lever—A on the side of the seat and slide the seat forward or backward. After adjusting, be sure the seat is securely locked in position.



The backrest angle can also be set to eight different angles by turning the large knob-B-. Try them out until you find the angle which suits you best.

As a safety feature, the backrests of your Volkswagen are secured against tilting forward. To release the lock, just pull the knob – Con the side of the backrest upward.

To take the seats out, press the spring on the inner runner down and slide seat to the front.

## Before closing the door

The doors can be closed more easily if a window is opened slightly.

### 1 - Vent wing lock

To open the vent wing, turn knob of vent wing fastener until locking catch points in driving direction and push knob of vent wing fastener forward.



- 2 Window crank
- 3 Inside door handle
- 4 Armrest and door closing grip
- 5 Locking knob

The doors cannot be opened from inside or outside unless the locking knobs are raised.

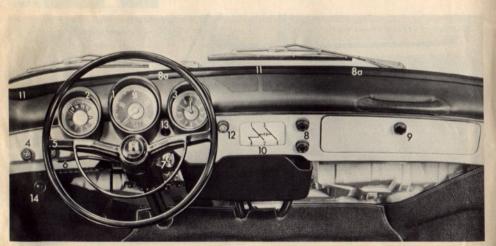
When leaving the vehicle, just press the locking knob down and pull the trigger in the outer handle as you close the door. The vehicle is then locked.

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



## In front of you - the instrument panel

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



### 1 - Speedometer

#### 2 - Fuel gauge

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

The following warning lights are in the fuel gauge dial:

dark green - parking lights

blue – headlight high beam red – generator

light green - oil pressure

light green

- turn signals

#### 3 - Clock

The clock is electrically operated. The hands can be moved by pressing in and turning the knob in the dial center.

## 4 – Windshield wipers and windshield washer system

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

### 5 - Light switch

Pull the knob out to the first stop to switch on the parking, license plate, tail and instrument lights. A green warning light in the dial of the fuel gauge also lights up. When the knob is pulled out to the next stop, the head-lights are switched on. At the same time, the green warning lamp for the parking lights is turned off.

The brightness of the instrument lights can be adjusted by turning the lighting switch knob.

### 6 - Turn signal switch

Lever up - right turn signals Lever down - left turn signals

The turn signals are cancelled automatically upon completion of a turn.

Pull turn signal switch toward steering wheel to raise or lower headlight beams. A blue warning light in the fuel gauge dial shows when the headlight high beams are switched on.

## 7 - Ignition switch

### 8 - Fresh air ventilation

The volume of fresh air coming from the vents - 8a - at the lower edge of the wind-

shield can be controlled with the upper knob. The lower knob regulates fresh air for the legroom.

Turn knobs to the left - increasing air flow Turn knobs to the right - decreasing air flow

## 9 - Glove compartment

To open, turn knob to the left.

#### 10 - Ashtray

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

### 11 - Defroster vents

## 12 - 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.

## 13 – Warning light for dual circuit brakes

See explanation on page 17.

### 14 - Knob for front hood

## Above the windshield

#### 1 - Sun visors

You can lift the visors out of the center mounting and swing them toward the door windows to prevent glare from the sides.

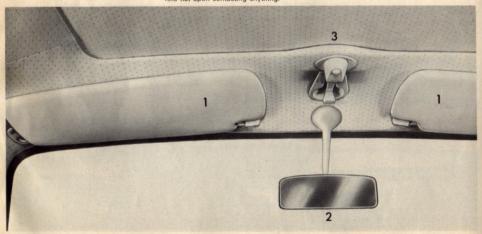
#### 2 - Rear view mirrors

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

The inside rear view mirror is rimmed with plastic for safety and designed to detach under impact. The outside mirror is hinged to fold flat upon contacting anything.

### 3 - Sliding roof

For safety reasons, the sliding roof crank should always be in the recess. When closing the roof, turn the crank as far as it will go then turn it back slightly until it can be folded into the recess.

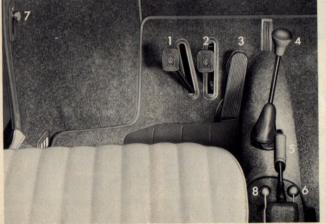


## In the footwell and between front seats

- 1 Clutch pedal
- 2 Brake pedal
- 3 Accelerator pedal

- 4 Gearshift lever
- 5 Handbrake

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



### 6 - Heating control lever

Lever up - heat on Lever down - heat off

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

# 7 - Heater control slides in front footwell

The flow of warm air into the front footwell can be controlled separately on each side.

Knob up - open Knob down - closed

### 8 - Control lever for heating in rear footwell

This lever controls the flow of warm air into the rear footwell when the heat is on.

Lever up - rear seat heat on Lever down - rear seat heat off

At low temperatures it is advisable to leave the rear outlets closed when first moving off. This increases the flow of air to the windshield to prevent steaming up when humidity is high. As soon as the windshield is clear, the rear footwell outlets should be opened so that the interior of the body heats up as quickly and uniformly as possible.

## Behind you

### 1 - Flexible window

### 2 - Interior lighting

The light has a built-in switch which is operated by pressing on the side of the lens. There are three positions:

Lamp in center position – light comes on when a door is opened

Lamp pressed in on right – light on Lamp pressed in on left – light off

## 3 - Assist straps and coat hooks

## 4 - Ashtrays

They are removed by opening them and lifting them out of housing at the bottom first. To insert, hook the ashtray onto the leaf spring at the top first and then press in at the bottom.



## Seat belts

Each seat in your Volkswagen is equipped with a seat belt. All occupants of the vehicle should wear the belts at all times.



#### The front seats

Each front seat is equipped with a combination lap / shoulder belt that is completely adjustable to fit different sized people and to allow for seat and backrest adjustment. When not in use, the lap section of the belt retracts and the belt should be hung on the hook on the door post by means of the hole in the buckle tongue. This prevents the belt from lying about and getting dirty and permits easy entrance and exit for the rear seat passengers.

Operation: After sitting down and adjusting the seat and backrest positions, spull the belt buckle across in front of you to the center of the car. Insert the buckle tongue into the opening in the housing on the center tunnel and press it in lightly.

A click will be heard when the buckle locks. Be sure the belts is not twisted. Pull lap belt through buckle until belt is completely unrolled from retractor and belt fits snugly across lap. Take up any slack by moving slide. Adjust shoulder belt by pulling belt until it fits snugly across chest. Take up any slack by moving slide. To lengthen either section of the belt release buckle from housing, hold buckle at a right angle to belt and pull belt through buckle. No further adjustment should be necessary if the same person uses the seat belt each time.

To release the belt, pull the unlocking lever on the tunnel housing upward. Only a light pull and a small movement of the lever is necessary.



#### The rear seats

Each rear seat is equipped with an adjustable lap belt.



Operation: After sitting down and making yourself comfortable, pull the longer section of the belt across in front of you until the buckles meet. Insert the tongue of the outboard buckle into the recess in the inboard buckle and press lightly together. A click will be heard when the buckles interlock. Be sure the belt is not twisted. Pull belt through the buckle until belt fits snugly across the pelvic area. Take up any slack by moving the slide. To lengthen the belt, release buckle, hold buckle on longer section at a right angle to belt and pull belt through buckle. No further adjustment should be necessary if the same person uses the sant belt sach time.

To release the belt, pull the unlocking lever on the inboard buckle. Only a light pull and a small movement of the lever is necessary.

#### Each seat

is also equipped with a third mounting point to facilitate subsequent installation of combination lap / shoulder belts. Do not strap in more than one person with each belt.

Cleaning: To keep belts clean, wash belts with mild detergent without removing from vehicle. Dry belts in the shade and do not allow lap belts to retract until completely dry. Do not bleach or dye the belts or use any other material to clean the belts because some of these agents can weaken the webbing.

Check buckles, retractors and fittings periodically to make sure they function correctly and belts to ensure that the webbing has not been damaged.

Now let us have a look...

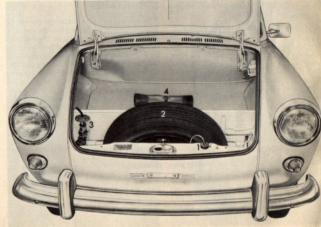
## ... in the front luggage compartment ...

Whether you are taking a lot of luggage with you or not, load the front luggage compartment first, using the heaviest pieces of luggage if possible. The correct distribution of load means the best road-holding, so take advantage of the possibilities offered by the Volkswagen with its two luggage compartments.



The knob which opens the front hood is on the left under the dashboard. The hood springs up slightly under spring pressure and can be opened fully when the safety hook near the lock has been pressed upward.

To close the hood press it down firmly until you hear a click. Never try to close the hood by pressing at the side, always press it in the center pear the lock.



# 1 - Container for windshield washer

As soon as the cap of the container is loosened, the air supply from the spare tire to the windshield washer container is interrupted by means of a valve in the filler cap. The washer container can be filled completely with washer fluid, It is advisable to add a cleaning solution to the water such as Volkswagen's Windshield Washer Anti-Freeze and Solvent as clear water alone is usually not adequate to ensure that the windshield is cleaned quickly and properly. If enough of this cleaning agent is put in, it also acts as a mild anti-freeze solution in the winter. Anti-freeze fluids are also commonly available. Follow the direction on the container for the amount to be used.

After filling container ensure that the filler cap is always screwed on tightly.

### 2 - Spare wheel

It also serves as an air supply for the windshield washer container, therefore, the spare tire pressure should occasionally be checked and inflated to 43 p.s.i. The air flow from the spare tire to the washer container will automatically be interrupted by a valve in the filler cap if the tire pressure ever falls below 25 p.s.i. (Squareback Sedan 37 p.s.i.). As a result, the spare tire will always have the required pressure should it be needed. Whenever you use the spare tire, make sure that the tire pressure is according to specifications shown on page 18 or 47.

#### 3 - Jack with bar

Operation of the jack is described together with wheel changing on page 27.

#### 4 - Tools

In the tool roll you will find:

- 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 spark plug wrench with bar
- 1 wheel bolt wrench

#### 5 - Brake fluid reservoir

The brake fluid level should always be above the protruding edge near the top of the container. If the brake fluid level ever falls below this edge, the complete brake system should be thoroughly examined by your Authorized VW Dealer.

Brake fluid is water absorbent and should, therefore, be renewed every 5 years. This should be performed by an Authorized VW Dealer.

## ... and under the rear hood of the Fastback Sedan

Here is another large luggage compartment which is opened with the lever in the lock pillar of the left door. The luggage compartment lamp only lights up when the vehicle lights are on and goes out when the hood is closed.

To get to the engine, roll back the floor covering and lift the lid. The lid can be held up by hooking the left handle into a bracket on the upper edge of the body opening or taken out completely.





## The rear compartment of the Squareback Sedan . . .

is accessible through the rear door which is opened by pressing the knob under the license plate. Then grasp the edge of the door underneath the lock and lift the door until it is held in the fully open position by the torsion springs. The load surface can be increased by more than half its size by tipping the rear seat forward. To do this, raise the seat cushion and fold the backrest forward with the handle.

When the seat has been tipped forward, the seat cushion and backrest are held toegther by two retaining pins. In the normal position, a retaining device automatically prevents the backrest from tilting forward.

Try not to let the door fly up on its own as this may strain the hinges.

To close the door, swing it down firmly. Make sure that it is properly closed.





## 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 tank holds 10.6 US gallons, sufficient for driving a distance of about 250 miles. The filler neck is located in the right front fender.

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 (90 octane-Regular).

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

The brakes should be checked before driving off. Your Volkswagen is equipped with a dual brake system. Each system, front and rear, can function independently.

Should the warning light on the instrument panel light up while applying the brakes, one of the two brake systems may have failed. See your Authorized VW Dealer as soon as possible. Though the brake will still operate, a longer distance is required to stop the vehicle.

To test the warning light bulb, push in on the bulb itself with the ignition switched on. If the lamp does not light, the bulb should be replaced.

Remember that the brakes are subject to wear. In view of the self-adjusting disc brakes of your Volkswagen the wear is indicated by a gradual drop of the fluid level in the reservoir. Depending on individual operating conditions, brakes may have to be adjusted between specified maintenance intervals.

The lights include headlights, back-up lights, tail lights, license plate light, turn signals and brake lights.

The turn signals, brake lights and back-up lamps must be checked with the ignition on.

If a turn signal is defective, the warning lights in the fuel gauge dial flash much faster than usual. The brake lights only work when the brake pedal is depressed and the back-up lights 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 otherwise the dipstick

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

To top up the oil level, a well-known brand of oil should be selected. Although it is advisable to stick to one brand of oil, using a different brand to replenish the oil will not harm the engine. Details about various oil viscosities are given on page 38.

#### Tire pressures

with full load

Fastback Sedan	Front	Rear	
with 1 or 2 occupants	16 psi	24 psi	
with 3 to 5 occupants	18 psi	27 psi	
Squareback Sedan			
with half load	17 psi	26 psi	

For long, high speed trips the tire pressures should be increased by 3 psi at front and rear.

18 psi

37 psi

If you operate your Volkswagen with tire pressures different from those suggested by the manufacturer, the handling characteristics may be impaired. This can also lead to excessive tire wear.

Adherance to the suggested tire pressures will assure you of the best handling characteristics and roadability.

#### Two more important points:

- 1 If the vehicle is used in very dusty conditions, the oil bath air cleaner must be checked frequently, even daily if necessary. How this is done is described on page 43.
- 2 Do not drive your car with a disconnected battery. This may lead to damage to the electrical equipment, especially to the electronic components of the fuel injection.

## Starting the engine



When starting the engine, the accelerator pedal must not be depressed. The amount of fuel and air required for starting is automatically supplied by the fuel injection system with which your Volkswagen is equipped.

Make sure the gear shift lever is in neutral before turning the ignition key. At temperatures below 32\* F the clutch pedal should be depressed so that the starter motor has to turn over the engine only.

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 there is a non-repeat lock in the switch which prevents the starter from being operated when the engine is running and thus being damaged. The warning lights in the fuel gauge will come on when the ignition is switched on. As soon as the engine starts, these lights will go out.

#### Red warning light for generator

If this light comes on when you are driving, the generator has stopped charging. 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, stop at once because 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

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 2nd gear 3rd gear 4th gear mph 0-15 10-35 20-55 30 and up

When a particular traffic situation makes it essential to move rapidly, you can accelerate up to 43 mph in 2nd gear and up to 60 mph in 3rd gear for brief periods only. 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:

10 and 20 mph in 2nd gear 20 and 35 mph in 3rd gear 30 and 60 mph 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 taking off and changing gears. He always depresses the clutch fully when shifting, 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 for example, it is four times longer than at 30 mph. Apply the brakes in time, but do not use too much force — locked wheels increase the braking distance.

The friction value of the brake pads can be reduced if water reaches the brake discs during heavy rains for instance. Although the discs dry immediately, a lag in braking action may be noticeable after applying the brakes. Reduced traction of the tires during rain adds to this condition.

Therefore take care when driving and remain at a safe distance behind the preceding vehicle, particularly when roads are wet and slippery.

That just about covers the operation of the car and how to drive it properly. The following pages deal with the tips for winter driving, breakdowns and all there is worth knowing about the lubrication and maintenance of the vehicle.

## When it snows and freezes

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

Do not, under any circumstances, try to influence the heating of the vehicle by covering up the slots in the rear fenders. These slots must always be clear so that air can flow into the fuel injection system and to the engine cooling fan.

When parking on steep hills, turn the front wheels against the curb to prevent the vehicle from rolling.

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.

If M+S tires are mounted they should have the same ply rating (PR) as the original tires.

The specific characteristics of winter tires can be improved by raising the tire pressures to 3 psi above the normal operating pressure for the tire concerned. This inflation pressure then covers the recommended pressure increase of 3 psi for fast highway driving. 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.

When M+S ice tires are fitted, it may be necessary to fit clips on the lower torsion arms of the front axle to prevent the tires from rubbing in the wheel housing on full lock.

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 '& 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. At other times, these additional changes are unnecessary and uneconomical.

In countries with arctic climates and temperatures below about —13\* F, the engine oil should be changed every 750 miles.

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

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

The battery not only tends to drop in capacity as the temperature drops, it also has to work much harder in the cold weather. 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.

Before having a quick-charge performed, disconnect both battery cables to avoid serious damage to the electronic control unit of the fuel injection system.

For more details see page 33.

The spark plugs should not have excessively large gaps especially in the winter. The gap is normally .028 in., but when the weather is very cold, the gap can be temporarily reduced to .016–.020 in. 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 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 car looks better

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

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

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 with clear water and then chamois the vehicle dry to avoid water spots.

#### Close fresh air ventilation system before washing the car.

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

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

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

**Polishing** should only be done when the paint has lost its gloss due to weathering or lack of proper care and the gloss can no longer be restored by waxing in the normal way. After treatment with polish, wax the paint thoroughly to retain the gloss which has been obtained.

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

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

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

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

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 afterward.

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

The windows can be cleaned with a sponge and clear water. Always use a 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 they tend to get clogged with tar solashes, oil and insects. New blades should be fitted as often as necessary.

## 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 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, Upholstery Cleaning, Whitewall Tire Cleaning	All Purpose Cleaner – ZVW 243101							
Paint Polishing and Paint Waxing	Combination Car Cleaner and Wax - ZVW 241 109							
Paint Polishing	Paint Polish - 000 096 001							
Paint Waxing	Paint Preservative - 000 096 011							
Care and Cleaning of Chrome Parts	Chrome Cleaner and Protection - 000 096 061							
Windshield Cleaning	Windshield Washer Anti-Freeze & Solvent – ZVW 241101							
Paint Touch up	Touch up Paint, all colors							
Removing ice from windows	Spray De-Icer – ZVW 241 113							

## 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 dealers staffed by skilled mechanics and equipped with all the special tools and equipment required. Whenever you see the familiar VW sign on the roadside, you can be sure of expert advice and quick, efficient assistance.



### Wheel changing

Disconnect hose connecting windshield washer container to spare tire and remove tire from well.

Apply the hand brake.

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

The cloth upholstery should be cleaned with a vacuum cleaner or a fairly hard brush. Spots can usually be removed with a lukewarm soap solution. Grease and oil spots can be treated with spot remover. Do not pour the liquid on to the material as this will cause marks. Dampen a clean, plain cloth with the cleaner and remove the spot by rubbing with a circular movement and working inwards.

The leatherette parts of the headlining, side trim panels and seats can be cleaned best with a soft cloth or brush. When very dirty use a lukewarm soap solution or a dry foam 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.

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.

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

- 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 sunshine for long periods.
- 4 Replace missing valve dust caps as soon as possible.

Tires should be replaced when the tread depth is down to 1/14 in. 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.







Insert jack into socket and push the jack tube down until it touches the ground.

Place bar in upper link of jack and raise vehicle.

Unscrew wheel bolts and take wheel off.

Place spare wheel in position and raise or lower vehicle 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 around to align the other holes.

Insert remaining bolts.

Tighten bolts until the wheel, centered by the spherical shape of the bolt heads, contacts evenly all round. Insert bar in lower link of jack and lower the vehicle by pumping handle up and down.

Tighten the wheel bolts diagonally at 95 ft.lbs. Correct tightness of the wheel bolts is important for safety.

Place trim ring in wheel and install hub cap with a blow of the hand.

Be sure to check the pressure in the tire you have just put on. For correct tire pressure see page 18 or 47.





### Removing and installing spark plugs

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

The plugs should be clean and dry inside and outside, in order to avoid shorting and tracking. Never use a write brush for cleaning spark plugs. Instead remove residue from electrodes and insulator by means of a piece of wood.

The gap can be set by bending the ground electrode. The gap should normally be .028 in, but when the weather is very cold the gap can temporarily be reduced to .016-.020 in, to facilitate starting.

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

Every 6000 miles the spark plugs are replaced during the maintenance service.

### 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 driver's seat must be loaded with one person or a weight of 154 lbs.

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.

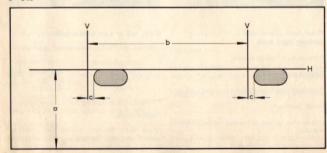
Opposite the center of each headlight, draw vertical lines (V) intersecting the horizontal. These lines should be 49.6 inches apart. Drawing a vertical line for the center of the vehicle might help aligning vehicle with screen.

a - Height of headlamp center from floor

b - Distance between headlamps (49.6 in.)

c-2 in

A - Lateral aim B - Vertical aim





Loosen the screw in the center below the headlight and take the trim ring off.

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 Vehicles for variations from these dimensions



## **Bulb replacement**

### Sealed Beam

A double filament, type 2, seven inch sealed beam unit is used in your Volkswagen. Should it become necessary to replace the unit, loosen screw in the center below the headlight and take the trim ring off. Remove three screws in sealed-beam

retaining ring and take ring off.

Take sealed-beam unit out of support ring and pull cable connector off.

When installing new sealed-beam units, ensure that the three glass lugs engage properly in the support ring.
Check headlight settings.



# Front turn signal and parking light bulb

Remove two Phillips screws.

Take lens off

Press bulb into holder lightly, turn and take out.

Install new bulb.

Ensure that gasket is located properly when installing.

Do not overtighten screws.



## Stop, tail or turn signal bulb

Unscrew two Phillips screws and remove lens,

Bulb positions:

— turn signal light

Center — tail light
Bottom — stop light

Press bulb into holder lightly, turn and take out.
Install new bulb.

When fitting the lens, ensure that gasket is located properly. Tighten screws evenly but do not overtighten.







#### License plate light bulb

1 - Fastback Sedan

Open rear hood.

Remove screws on each side of lens and take off lens with bulb holder.

Pull bulb holder out of lens.

Press bulb into holder lightly, turn and take out.

Install new bulb.

When installing, ensure that the cable grommet fits properly.

### 2 - Squareback Sedan

Open rear door.

Loosen 3 Phillip screws so that you can remove the insert together with the bulb holder.

Press bulb lightly into holder. Turn and take out.

Install new bulb.

During re-assembly make sure that the rubber gasket is properly seated.

### Back-up lamp bulb

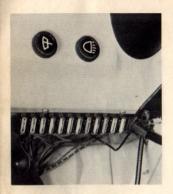
Unscrew two Phillips screws so far that the lamp rim and lens can be taken off.

Take reflector out of housing.

Press bulb into reflector lightly, turn and take out.

Install new bulb.

Ensure that gasket is located properly when installing.

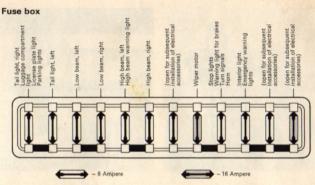


### Replacing fuses

The fuse box is located under the instrument panel on the left.

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

It is advisable to always carry a few spare 8 and 16 Ampere fuses on the vehicle.



The 8 amp fuse for the back-up lights is located in a separate fuse holder at the ignition coil in the engine compartment.

### **Bulb** chart

Bulb for	US replacement bulb	VW Part No.
Headlights	6012	111 941 261 A
Front turn signal / parking lights	1034	N 177382
Rear turn signal and stop lights	1073	N 177322
License plate lights for Squareback Sedan and tail lights	67	N 177182
License plate light for Fastback Sedan	89	N 177192
Back-up lights		N 177102
Speedo, clock, fuel gauge, warning lamps	_	N 177222
system		N 177512
Interior and luggage compartment light		N 177232

### **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. When the rear seat is lifted, the battery cell plugs can be screwed out. The electrolyte should always be just above the tops of the plates. The electrolyte level should be in accordance with the mark. If the level is low, top-up with distilled water only.

#### Attention

When working on the battery, take care not to short-circuit the terminals. This would cause the battery to heat up very quickly which could lead to damage.

The electrolyte level drops when the battery is charged due to the dissociation of the water used to dilute the electrolyte 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. VM 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.



### Towing

Just in case you wish to attach a towrope to your vehicle, please note that the bumpers are not suitable for this purpose. At the rear, the rope should be attached to a lower shock absorber bracket. This point is not very easy to reach, but it prevents damage to your vehicle.

At the front, the rope should be attached to the lower tube of the front axle.





## Here is what to do when trouble troubles you

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

Should you ever encounter difficulty in 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 four 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.

Note: The adjustment of idling and ignition timing requires special equipment and training. We suggest that you consult your Authorized Volkswagen Dealer.

PROBLEM	PROBABLE CAUSE	WHAT TO DO
VW will not start: engine will not turn over or turns	Run down or dead battery	Push to start the vehicle (turn on ignition, put in 3rd gear at a speed of approximately 20 mph, release clutch slowly). Have battery charged and cause of high current consumption checked.
over too slowly.	2. Loose connection	Make sure that all connections are tight.
	A. At battery	A. Check both cable connections on battery and grounded end of ground strap.
	B. At starter	B. Check connections at solenoid, mounted on starter, under right rear of vehicle.
	C. At connector block on steering column under dash board.	C. Check push-on connectors for tightness.
Marie Marie Marie M	D. At light switch or fuse box.	D. Check push-on connectors at back of light switch and on 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.	Loose connection in ignition system.	Check for loose connections at coil, distributor and spark plugs.
	Loose connection in primary circuit to coil.	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 on steering column under dash board for tightness, and connectors at fuse box. If still no spark see the nearest Authorized VW Dealer.

PROBLEM	PROBABLE CAUSE	WHAT TO DO
VW will not start: engine turns over.	If spark at black coil cable, trouble is in ignition system.	Check in this sequence:  A. Turn on ignition, remove distributor cap, engage 4th gear and push vehicle 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 distributor points, If even then no spark is visible, see your nearest Authorized VW Dealer.
	William Village Village	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 %". 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. 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 did not ensure proper ignition.
	Mary Control of the C	<ul> <li>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.</li> </ul>
	If spark is fairly good at plugs, trouble is most likely in fuel system.	7. Check fuel system in the following sequence:

PROBLEM	PROBABLE CAUSE	WHAT TO DO
VW will not start: engine turns over	A. Caused by improper starting procedure.	A. While starting do not depress the accelerator pedal!
	B. Engine flooded.	B. Check all electrical connections in engine compartment. If engine still does not start, remove and dry spark plugs. Re-install plugs and start engine with the accelerator podal fully depressed. If engine still does not start, see your Authorized VW Dealer.
Engine stalls shortly after starting	8. Poor fuel supply.	8. See paragraphs 10 and 11.
Engine stalls while vehicle is	9. Defect in ignition system.	9. See paragraph 4 through 6.
driven.	10. Fuel supply is exhausted.	10. Check whether any gasoline is left in tank.
	Fuel filter may be clogged, gasoline may be contami- nated by water or dirt	11. See your VW dealer for cleaning of all components of the fuel system.
Green warning light comes on while you are driving.	12. If green light goes on, the oil pressure is too low.	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.	If red light goes on, V belt may be torn or slipping or generator does not charge.	Switch off all unnecessary electrical equipment (radio, etc.). Drive to nearest VW dealer as otherwise the battery will soon run down.

## Proper lubrication . . .

means regular and careful lubrication. Details of the various intervals at which the lubrication points require your attention are given on pages 53 and 54.





### Engine

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

The oil is drained; when warm, by removing the plug in the oil strainer cover plate. Flushing is not necessary but the strainer must be removed and cleaned at every oil change. The gaskets and the copper washers under the cap nuts must always be renewed. The engine is then filled with 5.3 US pints of HD oil (4.4 Imp pints) – labeled "For Service M S". Due to the detergent properties of the HD oil, the fresh oil will look very dark after the

vehicle has been running for only a short time. This need not worry you and under normal operating conditions there is no reason whatever to change the oil at shorter intervals than every 3000 miles. We only recommend more frequent oil changes — every 1500 miles — in the winter if you drive

mainly short distances and in city traffic. If you only drive a few hundred miles a month under these conditions it is advisable to have the oil changed every 6 to 8 weeks. In countries with arctic climates where average temperatures are about —13° F the oil should be changed every 750 miles.

#### Some more information about oil

Always use a branded HD oil labeled "For Service MS" for the engine of your Volkswagen. The quality of oil produced by reputable firms is so good that the choice of brand is entirely up to you. The Volkswagen engine makes no special demands in respect to oil quality which cannot be met by the well-known and popular brands. It is suggested that you select "your" brand of oil at the first oil change at 600 miles and that you stick to this brand if possible.



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 only requires two different viscosity grades which are used, according to season of year, as follows:

SAE 30 in warm seasons and all the year in countries with hot climates

SAE 20 W/20 In the winter

OF

SAE 10 W\*) In areas where the average temperature is below 5° F

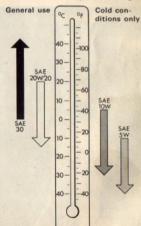
SAE 5 W\*) In countries with arctic climates and temperatures below -13° F

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

All SAE grades cover a temperature range of about 60° F and the ranges of two neighboring grades overlap by at least 30° F. 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.

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

### Temperature ranges of SAE grades



### Transmission

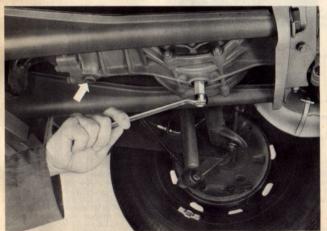
Transmission and differential are combined in one housing and both lubricated with the same hypoid oil. The oil should be up to the edge of the filler hole.

At oil changes, the old oil should be drained when warm. The two magnetic oil drain plugs must be cleaned carefully and 5.3 US pints of good quality SAE 90 hypoid oil put in. In countries with arctic climates, SAE 80 oil should be used all the year.

The oil sometimes runs into the transmission housing very slowly. If one attempts to put the oil in too quickly it may overflow and give the impression that the housing is already full

although actually only about 2–3 pints have been put in. It is essential to the service life and silent running of the rear axle that the correct amount of oil is used in the transmission.

Additives should not be used with hypoid oil.



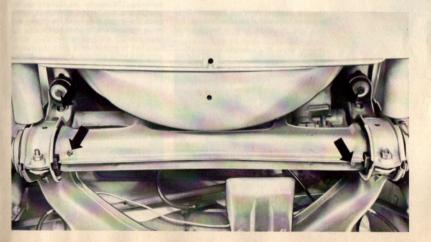


### Front axle

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

There are four nipples on the axle tubes which must be lubricated with a lithium-based multipurpose grease. The nipples and the grease gun nozzle should be cleaned carefully before greasing commences. Place gun on nipples and inject grease until fresh grease starts to come out at the torsion arm sealing rings. Grease and oil must not be left on tires and brake hoses for long periods. Even small traces should be wiped off immediately.

If the vehicle is driven less than 6000 miles per year, the front axle must be lubricated once a year.



### Doors and hoods

Above the door hinge pin is a small oil chamber which is sealed with a plastic plug. At least every three months, the amount of oil in the chamber should be checked after lifting the plug with a screwdriver. The chamber should be filled with SAE 30 engine oil. Press plug in and wipe off excess oil with a cloth.

The door and hood locks and the hood hinges should be lubricated at the same intervals. The door lock should be given a few drops of

engine oil through a hole in the end of the door which is normally sealed with a plug. The hood hinges are also oiled and the hood locks lubricated lightly. Surplus oil on the hood hinges should be wiped off.

The lock cylinder is treated with graphite as necessary. The key can be dipped into the graphite and then turned in the lock a few times. The friction surfaces of the latches and striker plates should be lubed lightly.





### Air cleaner

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

All the dust present in the air drawn in by the engine is retained by the filter element in the upper part of the air cleaner and washed out when the vehicle is in motion by the oil in the lower part. In time, this causes a layer of sludge to form at the bottom of the lower part. When there is only <sup>3</sup>/<sub>16</sub>° 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:

Release clip on intake pipe and pull bellows from pipe.

Pull crankcase breather hose off air cleaner intake pipe.

Pull hose for auxiliary air control valve off air cleaner intake pipe.

Loosen Phillips head screw of clamp for elbow connector on intake air distributor.

Remove air cleaner after loosening wing screw.

Release the three clips and take top part of cleaner off.

The top part must not be put down with the filter element upward.

Clean lower part of cleaner carefully.

Fill cleaner to mark with 0.85 pint of fresh engine oil. SAE 30 oil should be used 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 assembling the cleaner note that the red marks on upper and lower parts are in line.

When installing the cleaner, ensure proper fit of bellows on intake pipe of air cleaner and elbow connector of intake air distributor.









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

GENUINE VW PARTS are the proper replacement parts for the Volkswagen. They guarantee accuracy, quality and reliability. Every part of the 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. The genuine parts are expertly installed at any Authorized Volkswagen Dealership.

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 less expensive 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.

APPROVED VOLKSWAGEN ACCESSORIES are not just any old accessories. They have either been designed especially 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.

Genuine Volkswagen parts, new and rebuilt, and approved Volkswagen accessories are covered by a warranty guaranteeing them to be free of defects in material and workmanship for a period of 6 months or 6,000 miles whichever comes first. 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.

### **Technical** data

### **Engine**

Four cylinder, four stroke, horizontally opposed, flat design, in rear Thermostatically controlled air cooling by fan on crankshaft Pressure oil feed with gear-type pump Oil cooler Electric fuel pump Flectronic fuel injection

3.36 in. (85.5 mm) 2.72 in. (69 mm) Stroke 96.6 cu. in. (1584 cc.) Intake and exhaust .004 in. (0.10 mm) 7.7:1 Compression ratio 65 bhp. at 4600 rpm. Maximum output SAE 86.8 ft. lbs. at 2800 rpm. 26.4 miles per US gallon 8.9 liters per 100 km 31.5 miles per Imp. gallon 90 octane (Regular) 1.7-3.4 US pints per 1 000 miles 0.5-1.0 liters per 1 000 km

#### Power transmission

Single plate, dry clutch
Clutch pedal free play: .4—.8" (10—20 mm)
Baulk synchronized four-speed gearbox with bevel gear differential in one housing
Gear ratios: 1st gear 3.80: 1, 2nd gear 2.06: 1, 3rd gear 1.26: 1, 4th gear 0.89: 1,
Reverse gear 3.61: 1
Differential ratio: 4.125: 1

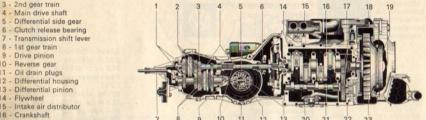
Differential ratio: 4.125:

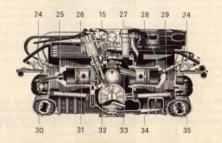
Swing axles

1.4-2.9 Imp. pints per 1 000 miles

<sup>\*)</sup> Measured consumption plus 10%, with half load at a steady % of maximum speed on level road.

- 1 4th gear train
- 2 3rd gear train
- 3 2nd gear train
- 4 Main drive shaft
- 6 Clutch release bearing
- 7 Transmission shift lever
- 8 1st gear train
- 9 Drive pinion
- 10 Reverse gear
- 11 Oil drain plugs
- 12 Differential housing
- 13 Differential pinion
- 14 Flywheel 15 - Intake air distributor
- 16 Crankshaft
- 17 Camshaft drive gears
- 18 Fan housing
- 19 Crankshaft pulley
- 20 Oil strainer
- 21 Camshaft
- 22 Oil pump
- 23 Fan
- 24 Injection valves
- 25 Valve
- 26 Oil cooler
- 27 Oil bath air cleaner
- 28 Cylinder head
- 29 Spark plug
- 30 Heat exchanger
- 31 Piston
- 32 Ignition distributor 33 - Connecting rod
- 34 Thermostat
- 35 Cylinder





### Chassis

### Platform frame with tunnel-shaped center member

Front axle bolted to forked frame head, sub-frame at rear to carry engine-transmission unit Independent suspension: twin, cranked, trailing arms at front, swing axles on trailing arms at rear Torsion bar springing, double-acting telescopic shock absorbers, stabilizer at front, equalizer spring at rear

Roller steering with maintenance-free tie-rods and hydraulic steering damper

Footbrakes: Hydraulic, dual circuit system with discs at front

Handbrake: Mechanical, effective on rear wheels.

1	Wheelbase										94.5 in. (2400 mm)
	Furning circle										36.5 ft. (11.1 m)
	Frack at front.										51.6 in. (1310 mm)
	Toe-in										.16 in—.24 in. (4 to 6 mm) unladen
	Camber										1* 20' ± 20' unladen
	Frack at rear .										53.0 in. (1346 mm)
1	Wheels		4	1	*	*	2				4½ J × 15 safety rim wheels
	Tires										
	Fastback Sec	dar	1								6.00 × 15 L 4 PR tubeless
	Squareback										6.00 × 15 L 6 PR tubeless
	oquaioback		u.		3	*					0.00 % TO E O TH tubbless
	-										
	Tire pressures	200									
	Fastback Sec	dan	1					80			1 to 2 occupants Front 16 psi. (1.1 kg/cm²)
											Rear 24 psi. (1.7 kg/cm²)
											3 to 5 occupants Front 18 psi. (1.3 kg/cm²)
											Rear 27 psi, (1.9 kg/cm²)
	Squareback	Cal	dae								with half payload Front 17 psi. (1.2 kg/cm²)
	Squareback	360	uai		*		*	*			
											Rear 26 psi. (1.8 kg/cm²)
											with full payload Front 18 psi. (1.3 kg/cm²)

For long, high speed trips, the tire pressures should be increased by 3 psi. (0.2 kg/cm²) at front and rear.

Rear 37 psi, (2.6 kg/cm²)

Electrical system	Voltage
	Battery 44 Ah
	Starter 0.7 hp
	Generator max. 360 watts, early cut in
	Distributor with vacuum spark advance
	Firing order
	Basic ignition timing TDC, engine at operating temperature
	Cantact breaker gap
	Spark plugs
	or plugs with similar values from other manu-
	facturers
	Plug thread 14 mm
	Plug gap
	109 900
Dimensions and weights	Fastback Sedan Squareback Sedan
Difficultions and Weights	Length
	Width
	Height
	Ground clearance 5.9 in: (150 mm) 5.9 in. (150 mm)
	Unladen weight
	Max. load
	Permissible total weight
	Permissible front axle load
	Permissible rear axle load
	termination and the same termination and the same termination (and the same termination)
	Permissible trailer weights:
Continue of the late of the la	Trailer with brakes
	Trailer without brakes 1025 lbs. (465 kg) 1080 lbs. (490 kg)
A STATE OF THE PARTY OF THE PAR	
Capacities	Fuel tank 10.6 U.S. galls. (8.8 Imp. galls; 40 liters)
	Engine 5.3 U.S. pints of engine oil (2.5 liters; 4.4 Imp. pints)
	Rear axle and transmission 5.3 U.S. pints of hypoid oil (2.5 liters; 4.4 Imp. pints)
	Brakes O.53 U.S. pint of brake fluid (0.25 liter; 0.44 Imp. pint)
	Oil bath air cleaner Approx. 0.85 U.S. pint engine oil (0.40 liter; 0.70 lmp. pint)
	Container for windshield washer Approximately 3,5 pints (1,7 liter) of water
40	

### Performance

Maximum and Acceleration										84 mph (135 kph) 11.5 seconds	Min. Andrews the said of
Climbing abil	ity	1 %	,							Fastback Sedan¹)	Squareback Sedan <sup>2</sup> )
First gear .						200				46.0	41.5
Second gear										24.0	21.5
Third gear .										13.5	12.0
Fourth gear										8.0	7.5
										1) with 2 occupants	2) with half payload

### The identification plate

is found under the front hood beside the hood lock. 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:

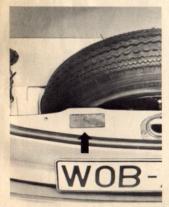




is also found on the frame tunnel under the rear seat.

### The engine number

is found between the oil cooler and the air cleaner near the crankcase joint.







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### Lubrication and maintenance

A. The free maintenance service at 600 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.
- 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 Check contact points, lubricate distributor.
- 4 Check and adjust valve clearance.

- 5 Check and adjust clutch pedal free-play.
- 6 Check dust seals and proper fit of plug on ball joints. Check dust seals on tie rod ends. Check tie rods, tighten if necessary.
- 7 Check tire pressures. Check wheel bolts, tighten if necessary.
- 8 Check brake system for damage and leaks, check brake fluid level, add if necessary. Adjust foot and hand brakes.
- 9 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 perforance.

### After roadtest:

Adjust ignition timing with stroboscopic light. Check and adjust idling. Check throttle switch for correct functioning. Check cylinder head covers for leaks.

 Lubricants and fluids are paid by the customer.

# B. An oil change service every 3,000 miles - WS 5 - consists of:

- Engine: Change oil, clean oil strainer. Check for leaks.
- 2 Door and hood locks, door hinges: Lubricate.
- 3 Battery: Check, add distilled water if necessary. Clean and grease terminals.
- 4 Windshield washer: Check fluid.

C. A lubrication and maintenance service every 6,000 miles -W10-

#### **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: Lubricate.
- 5 Air cleaner: Check, clean lower part if necessary and fill with fresh oil.
- 6 Battery: Check, add distilled water if
- 7 Windshield washer: Check fluid.

### Maintenance Service

#### The Mechanic:

1 - Check V-belt, adjust if necessary.

- 2 Fuel system: Replace filter.
- 3 Check contact points, replace if necessary, lubricate distributor.
- 4 Check and adjust valve clearance.
- 5 Replace spark plugs. Check compression.
- 6 Check exhaust system for damage.
- 7 Check water drain flaps and air intake housing bellows.
- 8 Check and adjust clutch pedal free-play.
- 9 Check dust seals and proper fit of plug on ball joints. Check dust seals on tie rod ends. Check tie rods and tighten if necessary.
- 10 Check and adjust play of upper torsion arms.
- 11 Check front wheel camber and toe-in.
- 12 Steering gear: Check and adjust play between roller 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. Check switch and warning light for brake operation.

- 15 Check thickness of brake linings and pads.
- 16 Check operations of electrical system and headlight adjustment.
- 17 Check wiper blades, replace if necessary.

The Service Adviser (Quality Control)

### During roadtest:

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

### After roadtest:

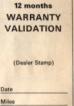
Adjust ignition timing with stroboscopic light. Check and adjust idling. Check throttle switch for correct functioning. Check cylinder head covers for leaks.

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

### Maintenance Record

Maintenance is only a word. It covers many things. Proper maintenance guarantees the best economy, dependability, safety and convenience. All kinds of "maintenance" are available to you. Naturally, we believe that the best maintenance is obtainable from Authorized Volkswagen Dealers.

- 1 You 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 Record in the Owner's 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, 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 Owner's 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 600 miles and the oil change at 3000 miles are particularly important for a long, trouble-free service life. The rear cover of this Owner's Manual contains a punchcard for the free-of-charge maintenance service at 600 miles.
- 5 From 6000 miles onward, the combined lubrication and maintenance service should be performed every 6000 miles. Engine oil should be changed every 3000 miles. If your Volkswagen is driven less than 3000 miles in 3 months, have the oil changed every 3 months; if driven less than 6000 miles in 12 months, have the front end lubricated once a year.
- 5 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.





12 000 miles	15 000 miles	18 000 miles	21000 miles	24000 miles	27000 miles
W 10 Lubrication and Maintenance Service	WS 5 Oil change	W 10 Lubrication and Maintenance Service	WS 5 Oil change	W 10 Lubrication and Maintenance Service	WS 5 Oil change
(Dealer Stamp)	(Dealer Stamp)	(Dealer Stamp)	(Dealer Stamp)	(Dealer Stamp)	(Dealer Stamp)
Date	Date	Date	Date	Date	Date
Miles	Miles	Miles	Miles	Miles	Miles
30 000 miles	30 000 miles	33 000 miles	36 000 miles	39 000 miles	42 000 miles
W 10 Lubrication and Maintenance Service	W 50 Repack front wheel bearings Transmission Oil change	WS 5 Oil change	W 10 Lub caston and Mountehande Service	WS 5 Oil change	W 10 Lubrication and Maintenance Service
(Dealer Stamp)	(Dealer Stamp)	(Dealer Stamp)	(Dealer Stamp)	(Dealer Stamp)	(Dealer Stamp)
Date	Date	Date	Date 7-22-70	Date	Date
Miles	Miles	Miles	Miles 36057	Miles	Miles
45 000 miles	48 000 miles	51000 miles	54 000 miles	57000 miles	60 000 miles
WS 5 Oil change	W 10 Lubrication and Maintenance Service	WS 5 Oil change	W 10 Lubrication and Maintenance Service	WS 5 oil change	W 10 Lubrication and Maintenance Service
(Dealer Stamp)	(Dealer Stamp)	(Dealer Stamp)	(Dealer Stamp)	(Dealer Stamp)	(Dealer Stamp)
Date	Date	Date	Date	Date 8-15-72	Date
Miles	Miles	Miles	Miles	Miles 5 7577	Miles

The "National Traffic & Motor Vehicle Safety Act of 1966" requires manufacturers to be in a position to contact vehicle owners if a correction of a product defect becomes necessary.

Please fill in the attached postcard if you change your address or purchase a Used Volkswagen.

You need not use this card if you purchased your car through an Authorized Volkswagen Dealer.

Please quote the VW chassis number as it appears on the identification plate of the vehicle, its location is shown on page 50. Do not use the abbreviated serial number as shown on the vehicle registration.

Additional cards can be obtained from any Authorized Volkswagen Dealer.

