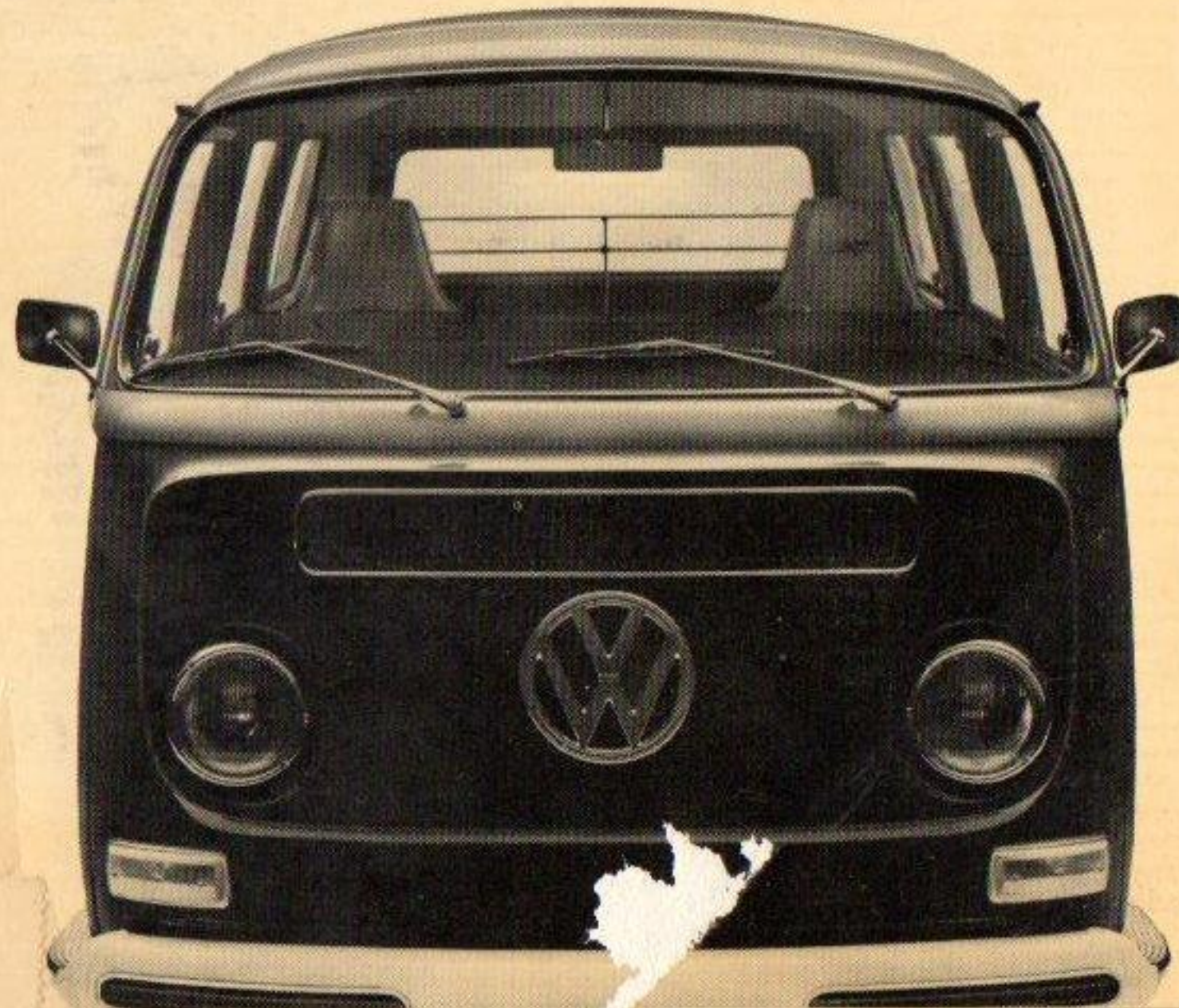
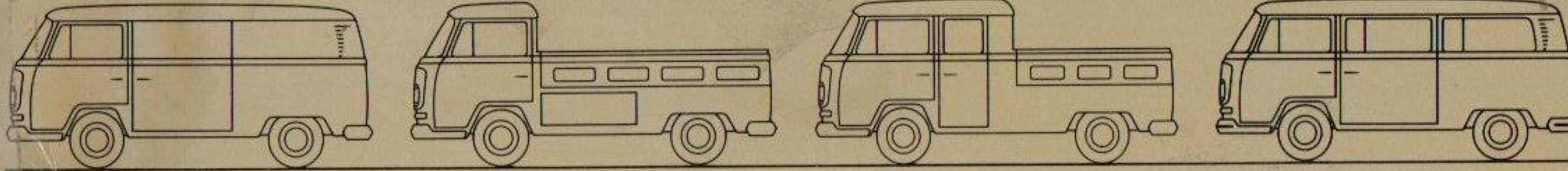
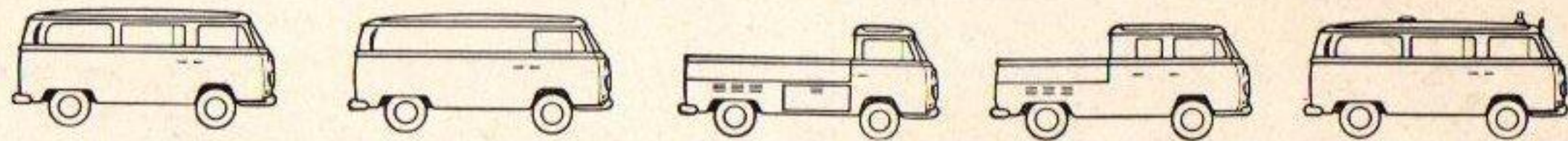


Instruction Manual



Instruction Manual

VOLKSWAGEN TRANSPORTER



August 1971

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

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The pictures and text in this manual are based on the Micro Bus L with a number of useful optional extras. Where the controls and technical details of the other Transporter models differ considerably, attention is drawn to the difference.

Special equipment such as is often required due to local regulations in various countries is not taken into account.

We trust you will appreciate that we must reserve the right to alter, without notice, any of the equipment and specifications illustrated or described in this manual.

Introduction

It is to your advantage to get to know your new car quickly so that you will be able to start off on your first trip with complete confidence. For this reason you should read the first part of this booklet, which deals with the operation of your Volkswagen, carefully.

The second part tells you everything about winter driving, trailer towing and care of the car and also contains some do-it-yourself tips. There is also some information on the proper sort of fuel and oil to use, how to carry out oil changes and lubricate the car and a collection of interesting technical data.

When you have studied this manual, and we strongly recommend you to do so, you will know how to operate your car properly. You will then be entitled to expect many years of reliable and economical service from your car regardless of weather, road conditions and mileage run. In this connection we should like to mention the VW Service Record which is the second important publication that you receive with the vehicle.

The Service Record tells you exactly what points you have to watch to maintain the road-worthiness of your car and explains the Volkswagen Diagnosis and Maintenance System. It also contains the Warranty Voucher for your car and the conditions on which this voucher is issued.

Always have the Service Record with you when you take the vehicle to a VW workshop — it helps to establish proper contact with the workshop staff. In your own interests: Have your Volkswagen serviced as laid down in the Service Record right from the start. Proper treatment and complete proof of all maintenance work carried out can be of vital importance if you should have occasion to make a claim under warranty.

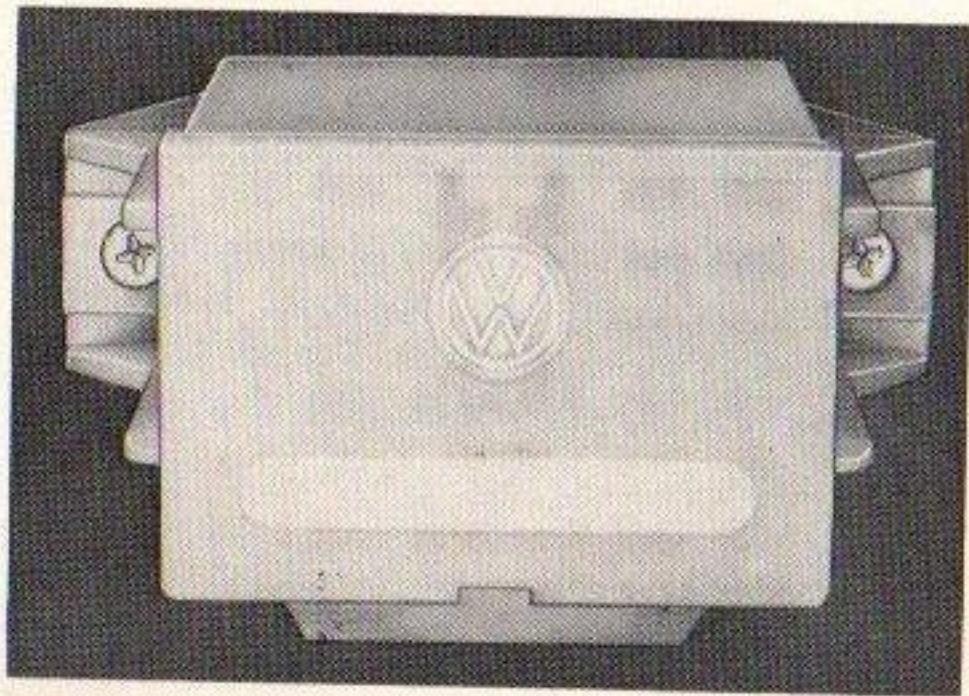
Test wiring and central socket

VW technology never stands still. The Volkswagen Diagnosis and Maintenance System is also continuously being modified to keep it in line with technical developments.

Advanced electronic test instruments which can check many points in the Diagnosis program **automatically** — without the help of the test mechanic — will be introduced. The results of these checks are printed on the test report simultaneously.

To do this, the vehicle is connected to the electronic system of the diagnosis stand by means of a special socket in the engine compartment.

Your Volkswagen is ready for this new system. The vehicle has a special wiring network which is connected to the multi-point socket in the engine compartment shown here.



This socket is used to connect the vehicle to the Diagnosis Stand. Please ensure that the lid of the socket is always closed.

The Volkswagen Diagnosis and Maintenance System is a good thing. It is the most modern automobile servicing system in use today and every effort is being made to keep it constantly in step with technical developments.

Concerning your safety

(Well worth reading before or after studying the rest of the manual.)

For years now our engineers have been leading the field in the development of safe automobiles. Your Volkswagen is the product of this experience:

It is now up to you to drive safely. Bear the following points in mind:

- drive carefully and defensively
- watch the traffic well ahead
- judge your speed and braking distances properly particularly when tire adhesion is reduced due to rain or snow and ice
- keep your vehicle in good mechanical condition by having regular maintenance checks carried out by specialists
- make use of the "Volkswagen Diagnosis and Maintenance System". This system has been developed specially to cater for the higher safety requirements of modern road traffic.

For everyday use there are also a few safety measures which no responsible driver should forget:

Before getting behind the wheel —

- check that the tires are in good condition and correctly inflated
- ensure that all windows are clean and unobstructed, particularly in the winter
- check that the headlamps, tail lamps and turn signals are clean
- check that all the lights are working. The headlamps, turn signals and brake lights work only when the ignition is switched on.

Before moving off —

- adjust the driving seat so that you are comfortable and can reach all the controls without effort
- set inside and outside mirrors properly
- put your safety belt on and ask all your passengers to do the same
- check that the dual circuit brake warning light is working (if fitted) by switching on the ignition.
- check windshield wipers (ignition on) and windshield washer
- check that all doors are properly shut.

Before getting into traffic stream —

- check the brakes — after having a good look in the mirror
- make sure that the handbrake is right off.

When on the move —

- keep a safe distance behind preceding vehicle
- give signals in good time when turning or changing lanes
- don't drive at top speed when it is dark
- switch the low beams on in good time at dusk so that you can be seen by other road users. This also applies in the daytime when it is foggy or snowing
- use fog lamps and rear fog lamps according to regulations
- remember that you have hazard warning lights to use if your car breaks down on a busy road. Always try to get the vehicle off the road as quick as possible when this happens. Place the warning triangle on road.
- don't continue driving when you feel tired
- always allow for the carelessness of other road users.

When parking the vehicle —

- protect it against misuse and theft by removing ignition key and locking the steering, close the windows, lock the doors and take steps to stop car rolling away especially when parking on gradients.

Identification Plate, Chassis Number, Engine Number

In the vehicle documents are, amongst other things, the model designation and the chassis and engine numbers. Vehicle licensing authorities and customs officials on borders often check that these figures agree with those on the vehicle.

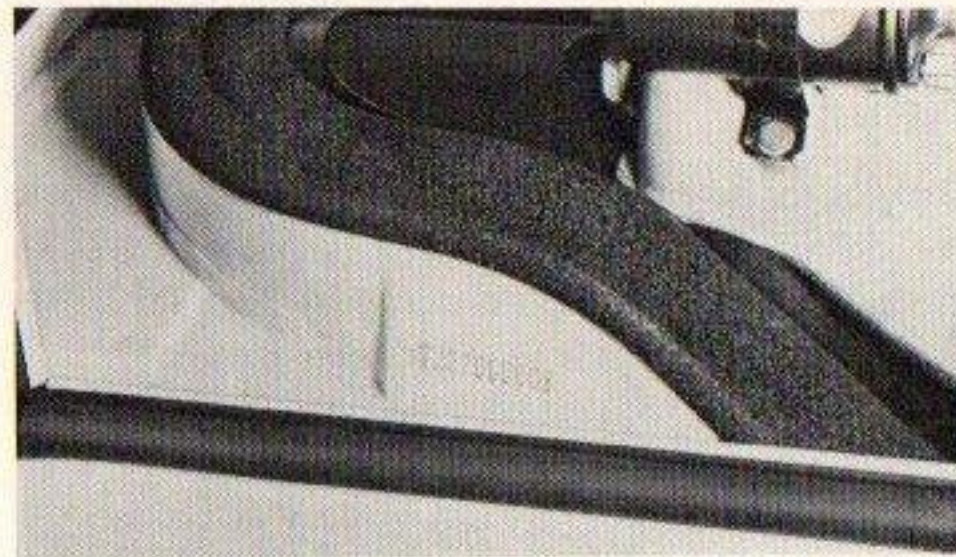
The Identification Plate

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



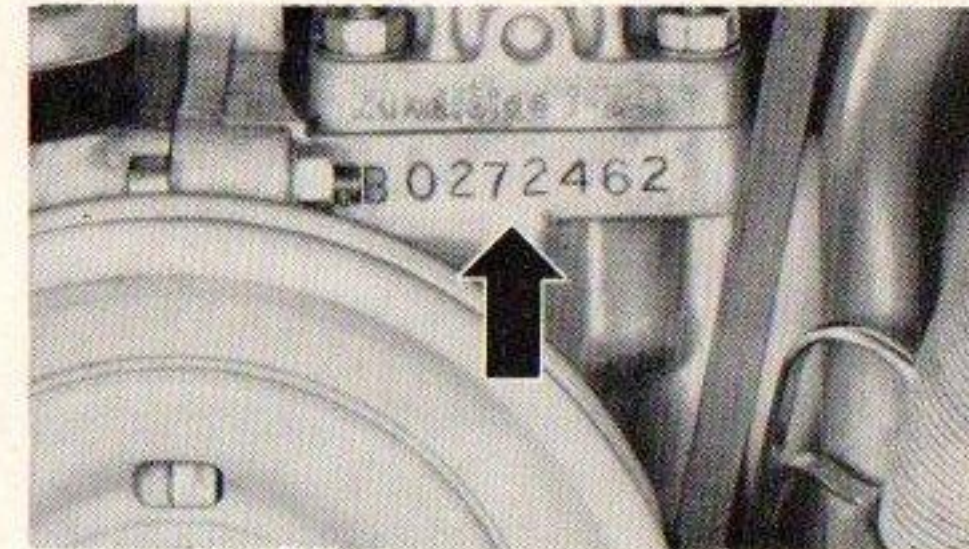
The Chassis Number

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

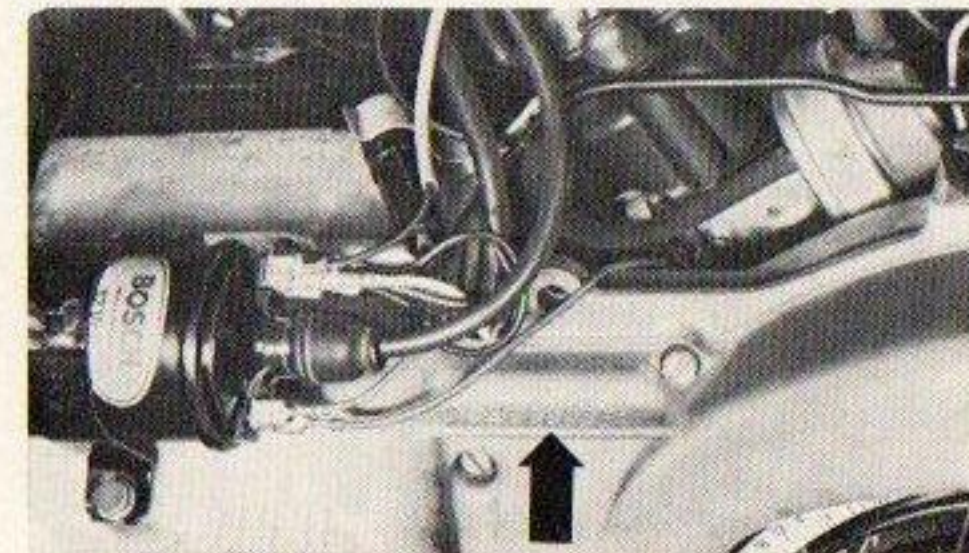


The Engine Number

is on the generator support flange.



On the 66 bhp engine*) the engine number is on the housing of the cooling air duct near the coil.



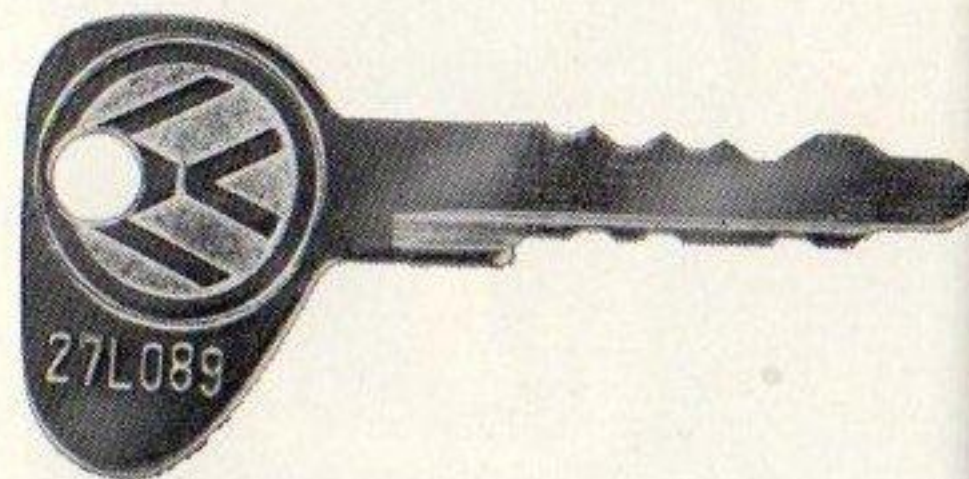
*) Optional extra

Operation

Keys

Only one key is required to unlock and lock the doors, including the rear flap and to start the engine. If the engine compartment lid is fitted with a lock*), it is also operated with this key. It is a good idea to note the number of the key. If you should lose the key, you can then obtain a replacement from your VW Dealer by quoting this number.

*) Optional extra



Doors

All the doors of your Transporter can be unlocked and locked from outside.

The cab doors

of the Micro Bus L model are fitted with vent wings. The cab doors of all other models can be fitted with vent wings as an optional extra.

1 - Vent wing fastener

To open, turn the fastener knob until the locking lug points to the front, then swing the fastener forward.

2 - Window crank

3 - Door closing handle

4 - Lock release lever and locking lever

The doors cannot be opened from inside with the lock release levers as long as the locking levers are pressed in.

When leaving the vehicle, just press the locking lever in and then depress the catch in the door handle as you close the door. The vehicle is then locked.

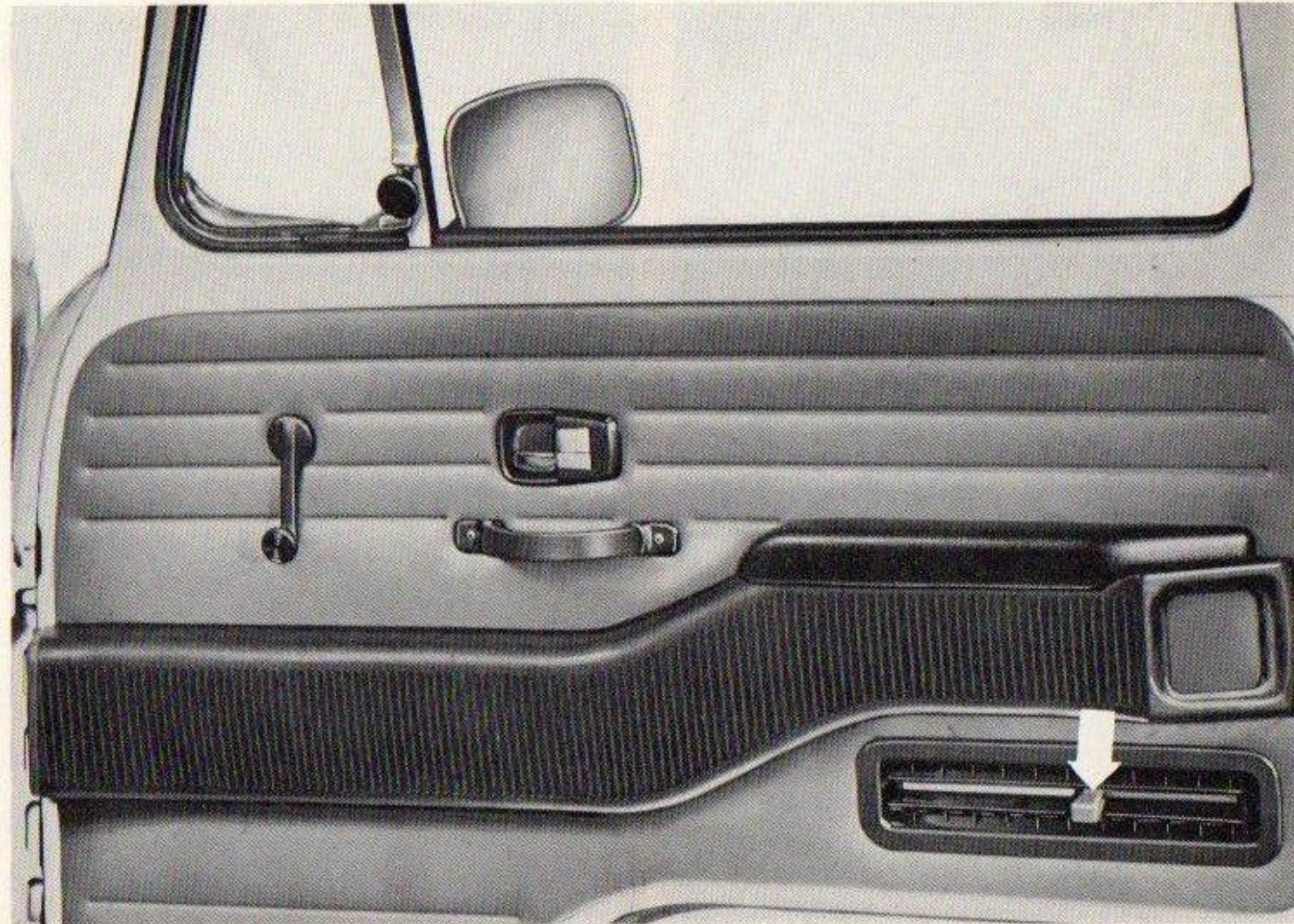
If the door closes on its own after the locking lever has been pressed in it will not lock itself because the locking lever springs out auto-

matically. This is an additional safety measure to prevent you from being locked out if the door should slam to while the key is still inside the vehicle.

5 - Arm rest on fresh air duct

This is only fitted in the passenger Transporter.

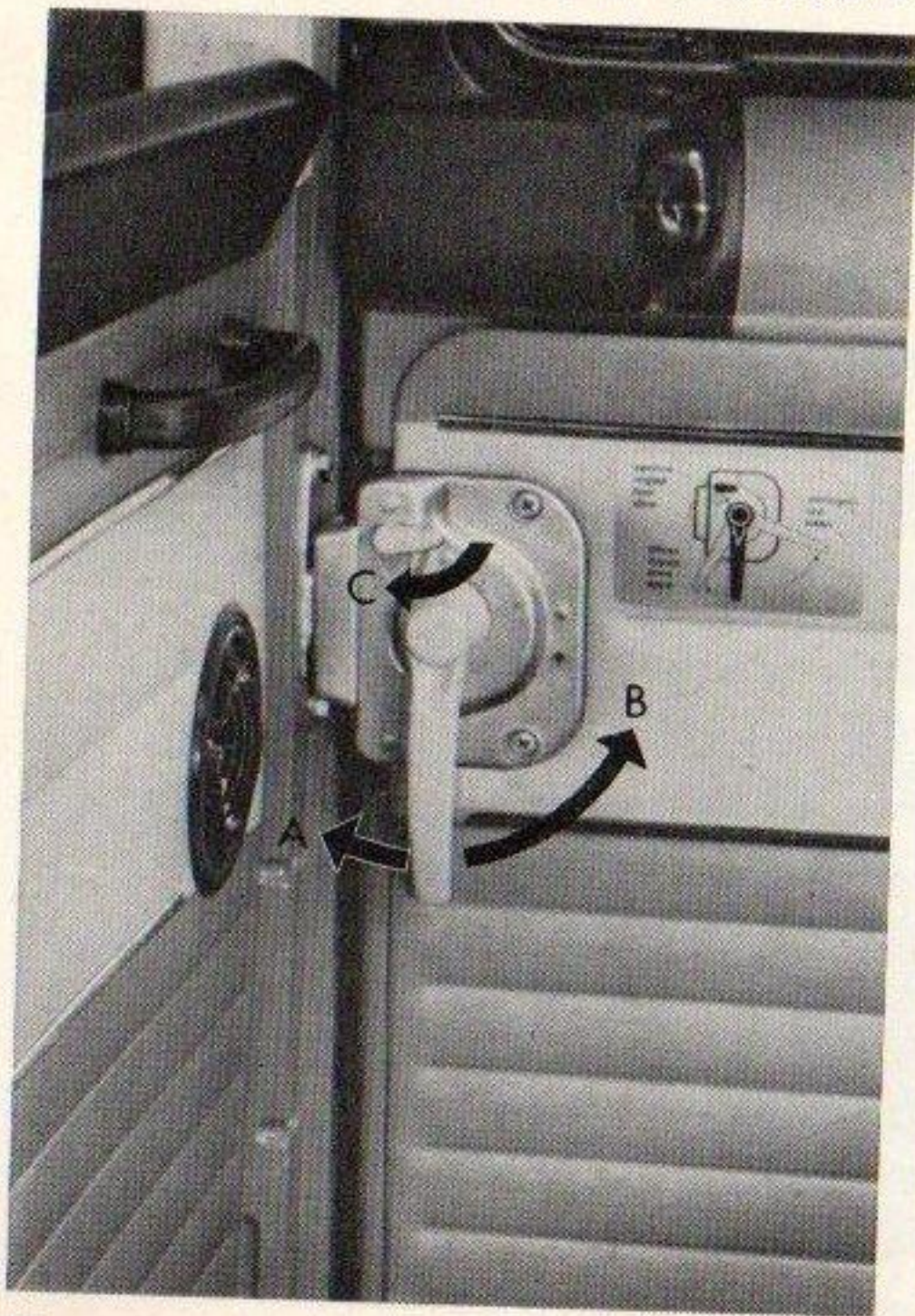
6 - Indirect ventilation with slide



The sliding door

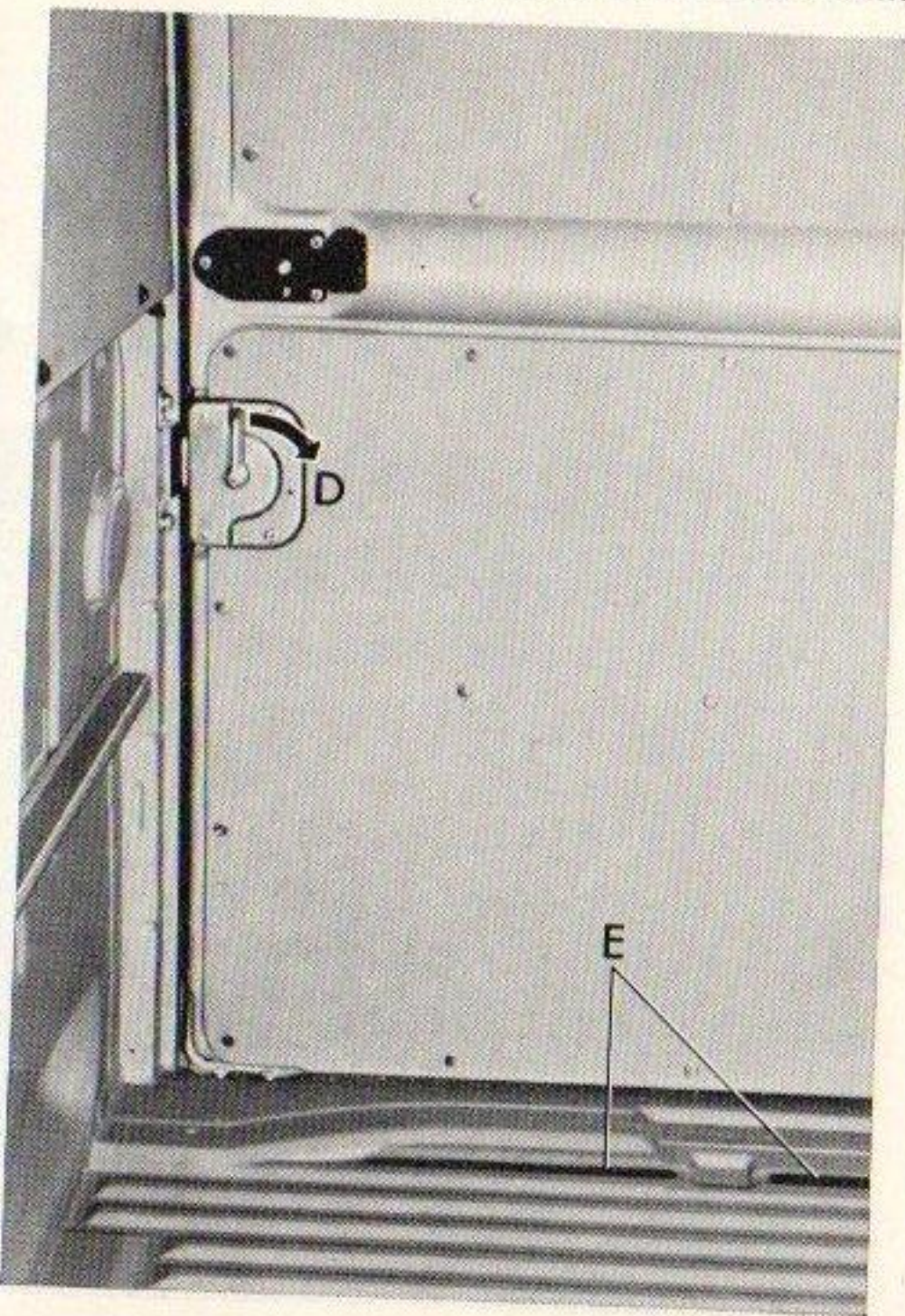
can be opened and slid back after pressing the handle down. When fully open, it is held by a hook.

To close the door, release the retaining hook by pressing the handle down again and push the door forward with a slight impetus until it



engages. Then move the handle up firmly so that the catch at the rear edge of the door is operated and the door is pulled in properly at the rear. Please note that when the vehicle is in motion, the door must always be closed and **locked**.

From inside, the door is operated in the same



way: To open it, press the handle forward — A —, to close it, pull the handle firmly to the rear — B —.

The door can be locked with the key from outside or by turning the small locking lever inside to point downwards — C —. The Delivery Van has a small button which has to be moved to the right instead of the lever.

On Delivery Vans with the full-width cab partition, the sliding door lock lever has to be pulled to the rear to open the door — D —. You can then get out if the sliding door closes unintentionally when you are still in the load compartment.

On the Kombi and the Delivery Van there are pressed marks — E — on the load compartment floor to mark the limit up to which the cargo can be loaded. To enable the sliding door to be operated properly, do not position the load over these lines.

The rear flap

has a safety button. To open the flap, press in the button at the bottom of the flap and then lift the flap until it is held in the fully open position by spring pressure.

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

Never drive with the rear flap open.

Seats

Cab

Your Volkswagen has individual front seats. The seat and backrest can be adjusted to various positions. This is quite simple to do: Just lift the lever — F — at the front of the driving seat and slide the seat forward or backward. A spring is fitted to prevent the seat from sliding right off the runners when pushed forward. Every time the seat is moved make sure that the lever engages properly so that the seat cannot move while you are driving.

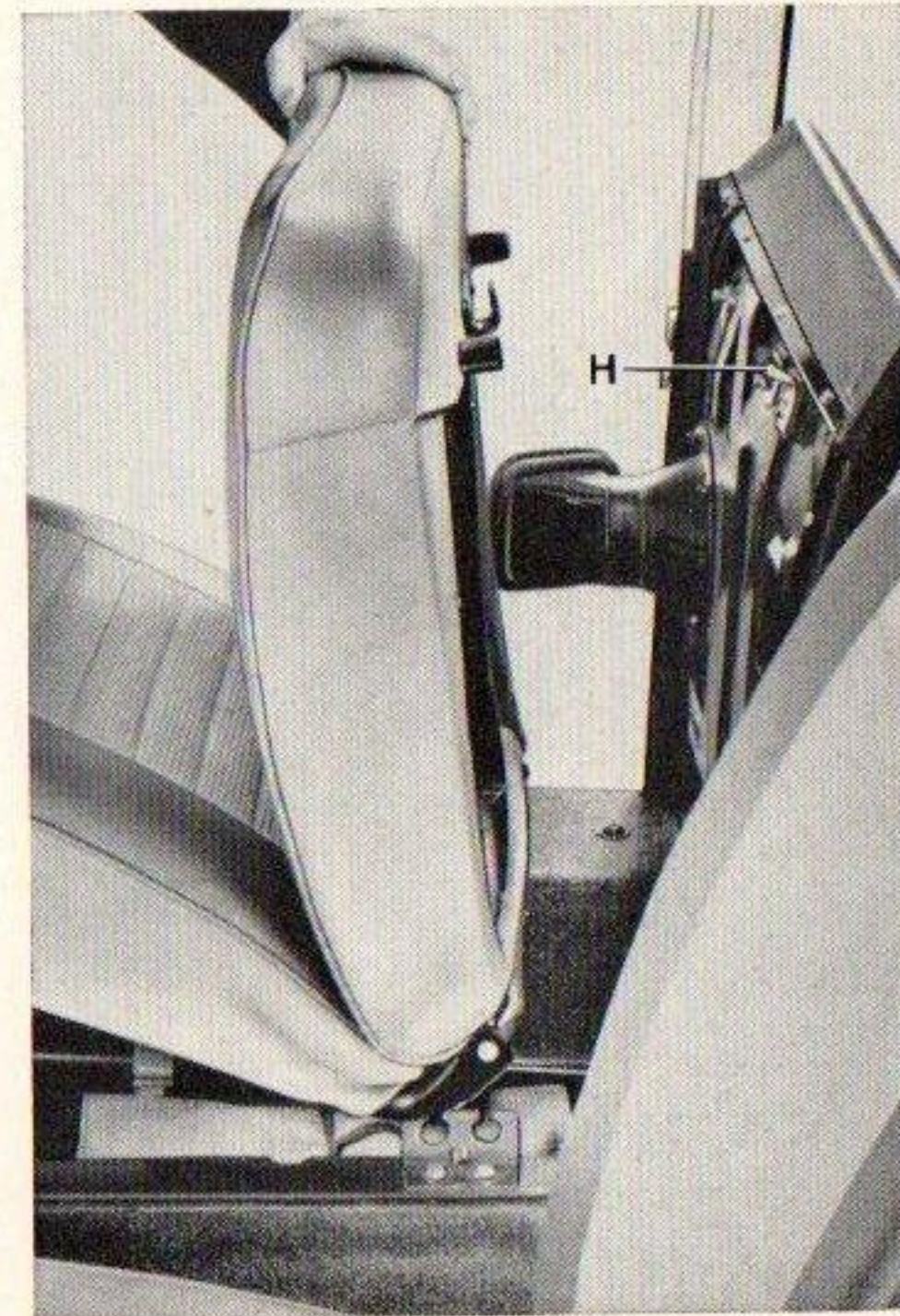
The backrest, which has a safety device to prevent it from tilting forward, can be set to any desired angle by turning the large knob — G —.

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

Front seats with built-in head restraints are available as an optional extra.

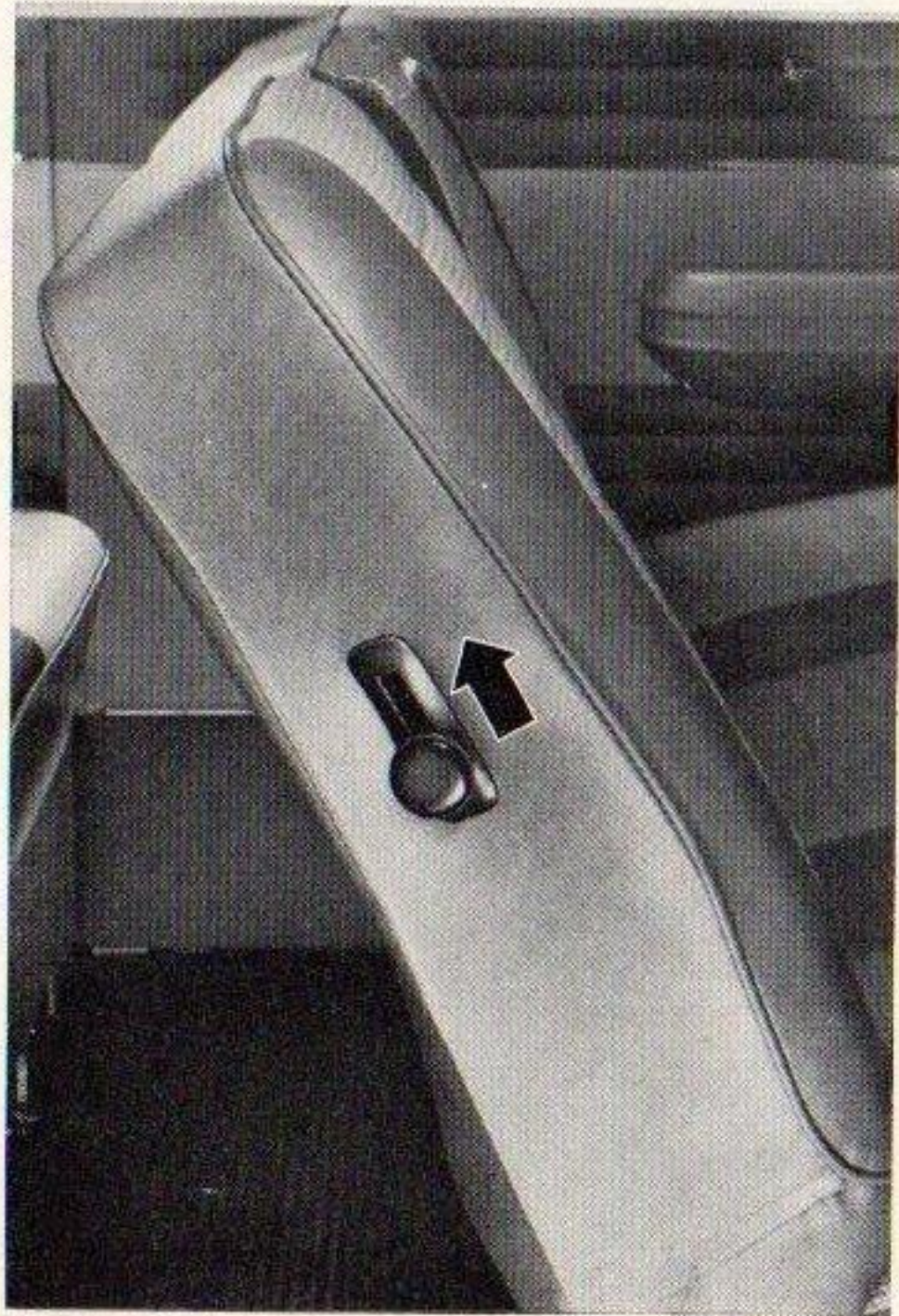


Behind the driver's or passenger's seat there is a bracket for the warning triangle 000 093 057 from our accessory program. On vehicles with a full-width cab rear panel the triangle can be placed under the passenger seat.

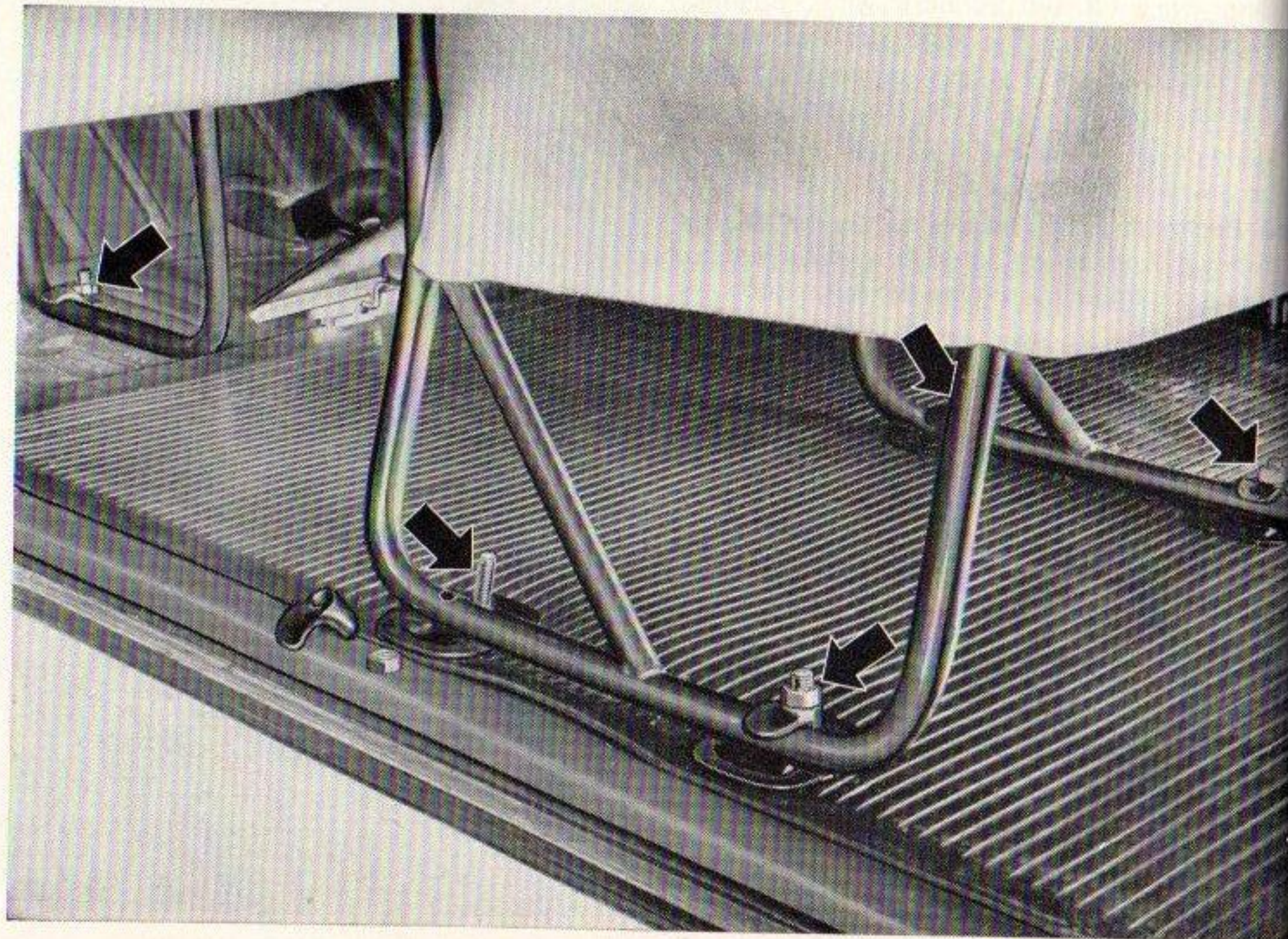


In the passenger compartment,

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

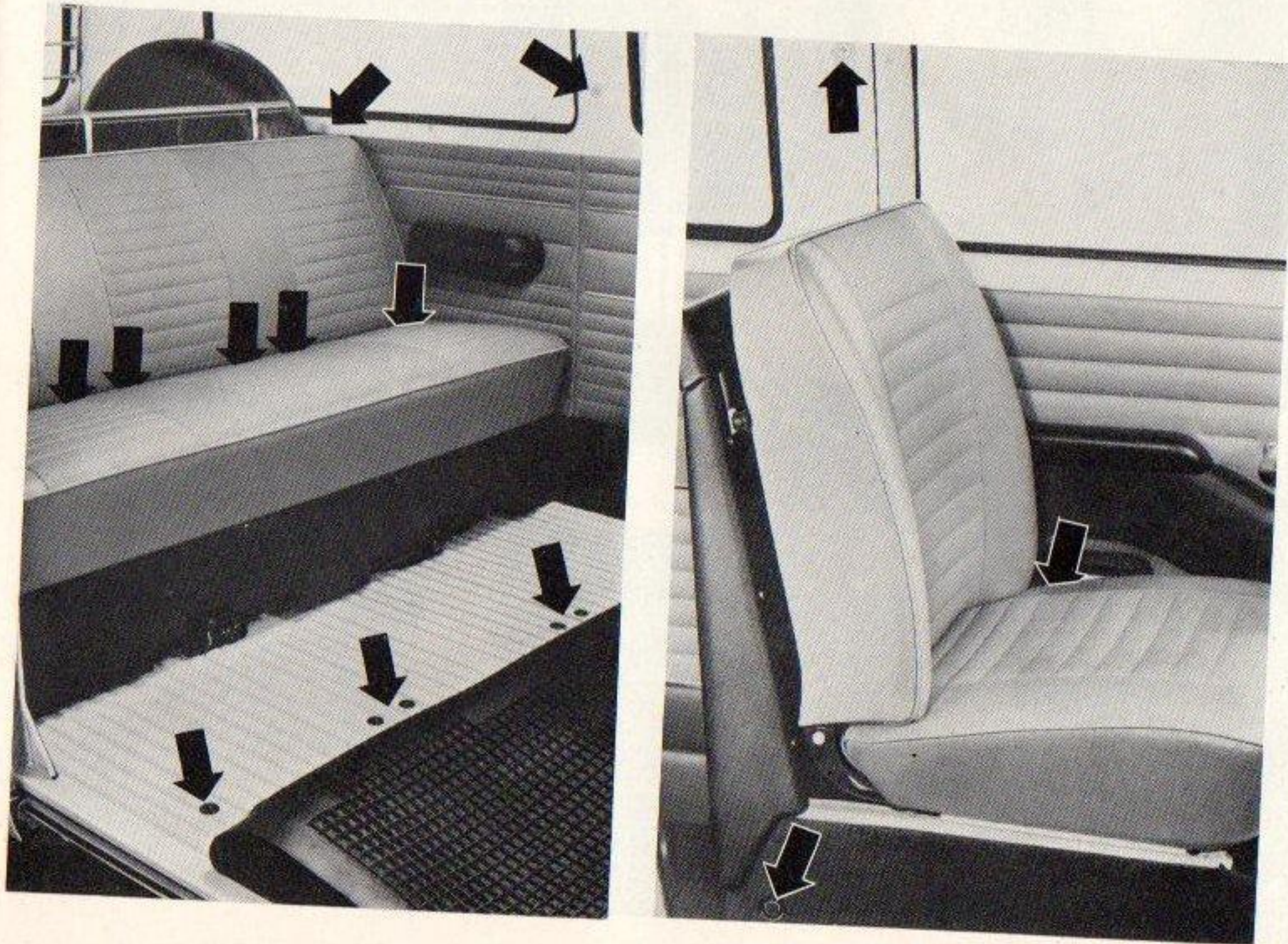


If you wish to transport large bulky loads you can take the seats out of the passenger compartment. To do this, pull the side trim panels from the center seat and the front trim panel from the rear seat, unscrew the nuts and take off the clips. Take out the seats and the floor plate and remove the bolts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

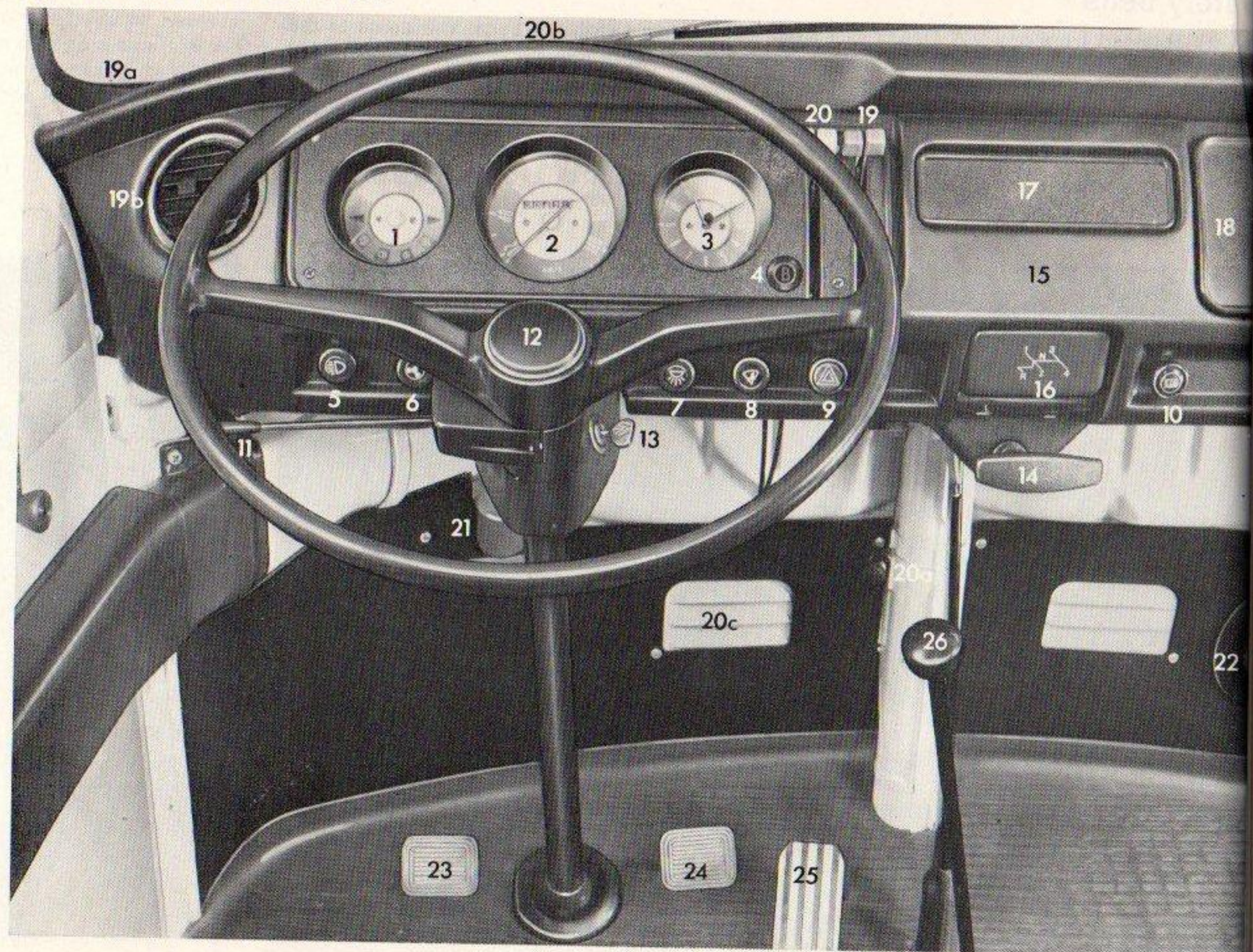


Safety belts

can be obtained from any VW Dealer. All seats can be fitted with lap belts. The seats in the cab and the outer seats in the passenger compartment can be fitted with shoulder or combined lap-shoulder belts. There are eight anchor points in the cab and sixteen in the passenger compartment. The tapped holes are fitted with threaded plastic plugs to keep out dirt. **These plugs must not be used to secure the safety belts.**



Instrument panel, hand and foot controls

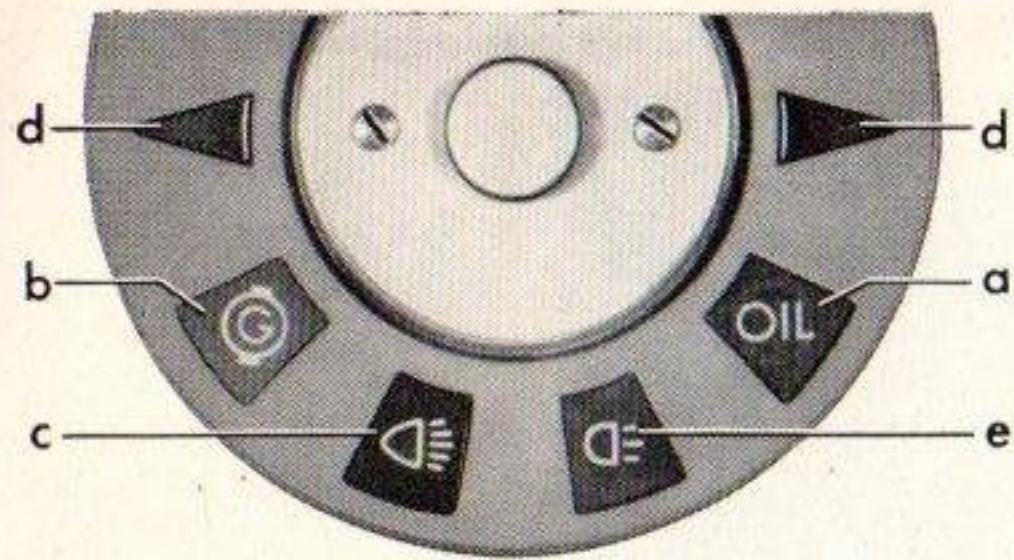


Even if it is not your first VW Transporter, have a good look at the instrument panel and try the various knobs and levers with the ignition switched on:

1 - Fuel gauge and warning lamps	(page 18)
2 - Speedometer	
3 - Clock **)	(page 18)
4 - Dual circuit brake warning light *)	(page 30)
5 - Lighting switch	(page 18)
6 - Switch for fresh air fan *)	(page 25)
7 - Switch for rear interior light	(page 18)
8 - Windshield wiper switch and washer knob	(page 19)
9 - Hazard warning light switch	(page 19)
10 - Switch for heated rear window *)	(page 20)
11 - Turn signal and dimmer lever	(page 20)
12 - Horn button	
13 - Steering/ignition lock	(page 20)
14 - Handbrake	(page 20)
15 - Padding for instrument panel *)	
16 - Ashtray	(page 20)
17 - Plate over radio aperture	(page 23)
18 - Glove box lid**), lockable	
19 - Fresh air control levers	(page 25)
a - Fresh air outlets	(page 25)
b - Fresh air jets	(page 25)
20 - Heating control levers	(page 25)
a - Warm air regulating levers	(page 26)
b - Defroster vents	(page 25)
c - Warm air outlets	(page 26/27)
21 - Brake fluid reservoir	(page 21)
22 - Windshield washer container	(page 21)
23 - Clutch pedal	(page 33/37)
24 - Brake pedal	(page 33/37)
25 - Accelerator pedal	(page 33/37)
26 - Gearshift lever	(page 21/33)

*) Optional extra

***) Can be subsequently installed on request



Fuel gauge

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

In the fuel gauge dial are the following warning lamps:

a - red	— oil pressure
b - red	— generator
c - blue	— headlamp high beam
d - light green arrows	— turn signals
e - dark green	— parking lights

Lighting switch

When the knob is pulled out to the first stop, the parking, license plate, tail and instrument lights are switched on and a green warning lamp in the fuel gauge dial lights up. When the knob is pulled out to the next stop with ignition on (key in position 2 only), the headlamps are switched on as well and the green lamp goes out. At key positions 1 and 3 the headlamps are switched off to reduce the load on the battery.

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

In order to ensure that the full battery capacity is available to start the engine, the headlights, wipers, fan*), heater*) and rear window heating*) are switched off automatically when the starter is operated.

Push / pull knob for rear interior light

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

Clock

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

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

Windshield wipers and windshield washer

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



If your vehicle is fitted with an automatic wash-wiper*) and a wiper interval switch, the rotary switch has 3 positions:

Interval switch — Switch at position 1; To regulate interval — turn switch from left (long interval) to right (short interval)

Slow continuous operation — Switch at position 2; Fast continuous operation — Switch at position 3; Wipers off — Turn switch fully to left.

Wash-wiper automatic — Switch at off or position 1 — When knob in switch is pressed, water sprays on to screen and wipers go to and fro three times automatically.

Hazard warning light system

To switch on, pull knob out. (A warning lamp in the knob comes on.)

When the system is switched on, all four turn signals flash at the same time. The system is used to warn other road users of a dangerous situation when moving or that the vehicle has broken down and is stationary. Regulations governing the use of this type of warning system vary from country to country.

The hazard warning light system remains in operation when ignition is switched off.

*) Optional extra

Heated rear window switch *)

This switch is for the heatable rear window but it only works when the ignition is switched on. A green warning lamp in the knob of the switch shows when the window heater is switched on. As soon as the rear window is clear, switch the heater element off to reduce the load on the battery.

Handbrake

To apply the handbrake, just pull the handle out.

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

Ashtrays

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

Turn signal and dimmer lever

Lever forward — right turn signals

Lever to rear — left turn signals

The turn signals are cancelled automatically after taking a corner.

The headlamp beams are switched up and down by lifting the turn signal lever. When the lights are off or only the parking lights are on, lifting the lever flashes the headlamps.

A blue warning lamp in the fuel gauge dial lights up when the high beams are switched on.

To signal slight changes in direction such as when lane changing, just lift or depress the lever until a slight resistance is felt (the warning lamp must be flashing). When the lever is released it springs back to the central position automatically.

*) Optional extra



Steering — ignition lock

If the key is difficult to turn in the lock or cannot be turned at all, just turn the steering wheel to and fro slightly to release the locking pin.

- 1 — Ignition off — steering locked¹⁾ (key cannot be removed)
- 2 — Ignition on
- 3 — Starting

¹⁾ The steering is not locked until the key has been withdrawn from the lock and the wheel turned to engage the locking pin.

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

Vehicles for certain export countries have a locking pin in the steering-ignition lock.



Brake fluid reservoir

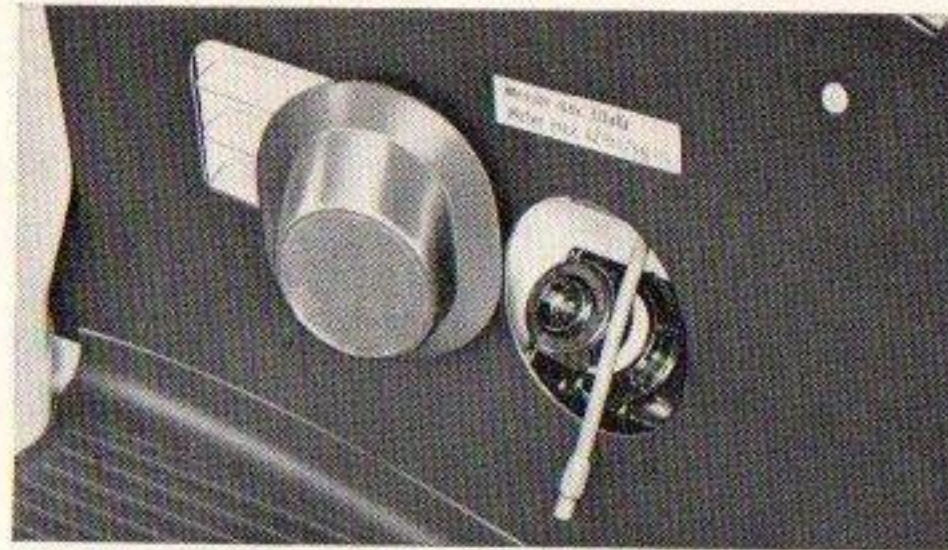
On vehicles with a **brake servo** *) the brake fluid reservoir is behind the driving seat.

To check the fluid level, push the seat forwards.

The fluid level should always be between 15 and 20 mm (.6 and .8 in.) below the screw cap. If the level drops considerably below this point after the vehicle has been in use for some time, have your VW Dealer check the brake system.

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

*) Optional extra



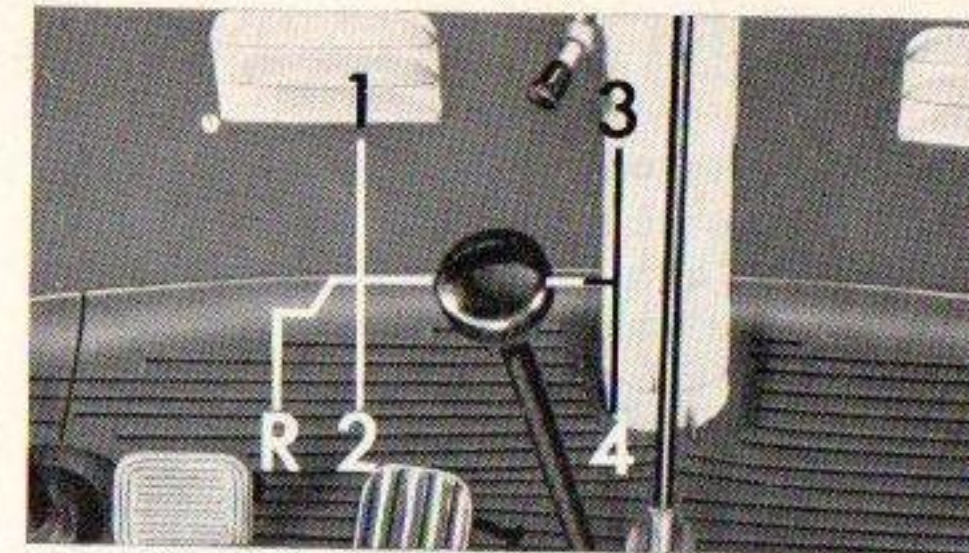
Container for windshield washer

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

It is advisable to add a cleaning solution to the water because clear water alone does not clean the windshield quickly and properly. If enough of this cleaning agent is put in, it also acts as an anti-freeze solution. The order number is given on page 40.

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

Methylated spirits do not have the cleaning properties of the special cleaning agent.



Gearshift lever

Reverse gear has a lock to prevent it from being selected accidentally. To engage reverse gear, press the lever down first then move it to the left and to the rear. When the ignition is switched on, the **back-up lights** **) come on at the same time as the gear engages.

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

**) Optional extra (Standard on Ambulance)

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 to the right then turn it back slightly until it can be folded into the recess.

Interior trim

1 - Sun visors

You can pull the visor above the driver's seat out of its mountings near the mirror and swing it towards the door window to prevent dazzle from the side.

The passenger's sun visor on the Micro Bus and Micro Bus L models has a built-in make-up mirror.

2 - Front interior light

Switch positions:

Forward¹⁾ - Light on only when cab doors are open

Center - Light off

Rear²⁾ - Light on all the time

Pick-up: ¹⁾ Up ²⁾ Down

3 - Rear view mirrors

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

The arm of the inside mirror has a safety mounting and springs out on impact. It can be installed again by pressing it firmly into the mounting.

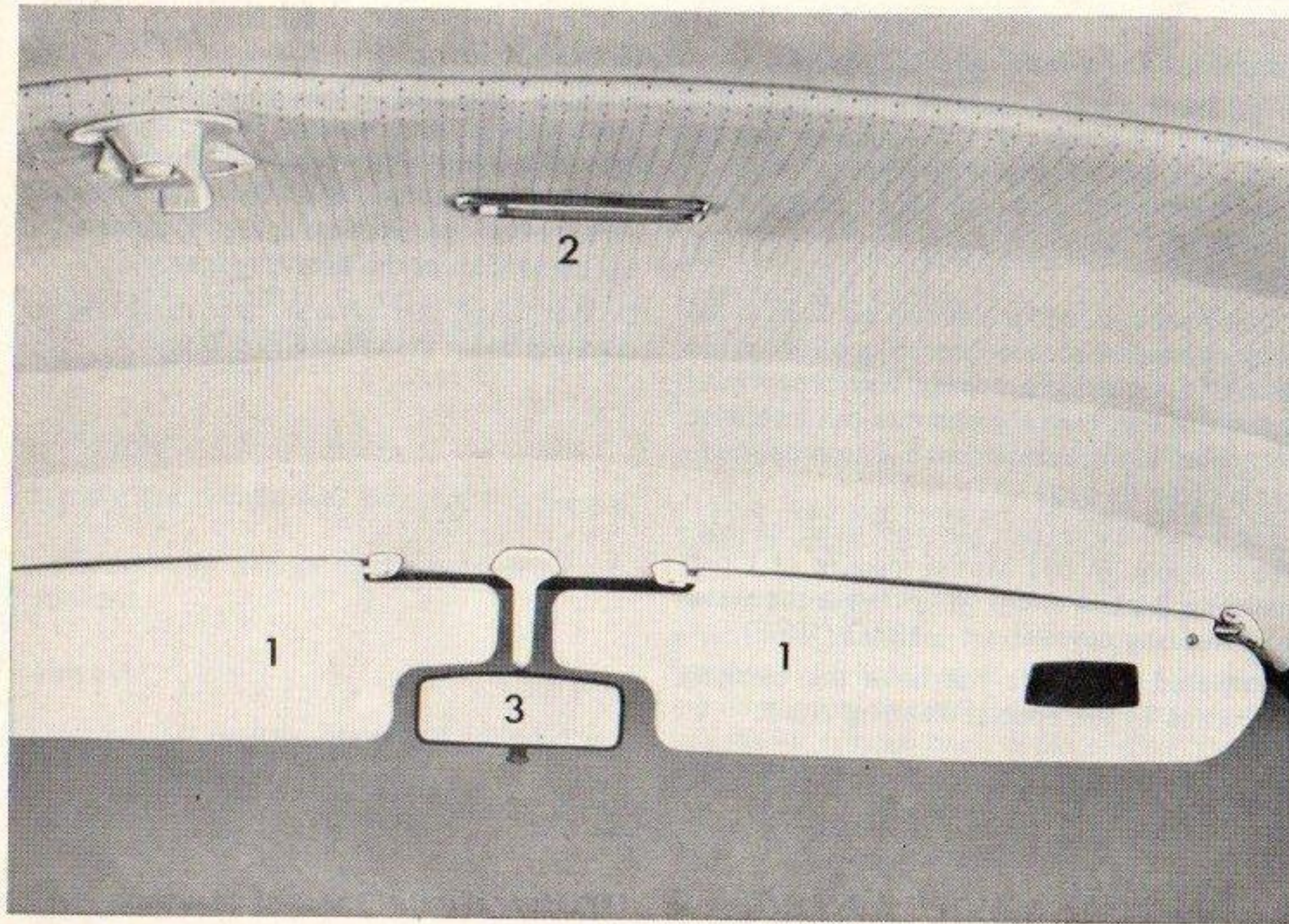
A **non-dazzle mirror** is available as an optional extra. A small lever at the bottom of the mirror alters the angle of the mirror glass to stop dazzle:

Lever pressed forward — anti-dazzle position

Lever pressed to rear — normal position

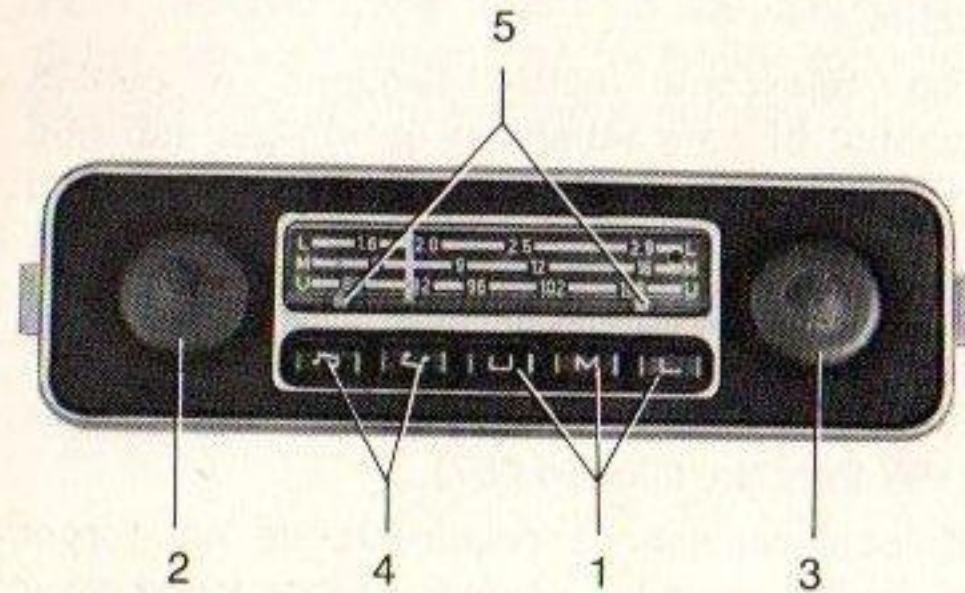
The ashtray

in the passenger compartment is removed by pressing down the leaf spring and hooking it out. To replace, just reverse the procedure.



VW Automobile Radios

are also available as optional extras. The models are called "Emden", "Wolfsburg", "Hannover" and "Ingolstadt" (mono).



Emden

1 - 3 wave band press buttons:

U = (87.6 — 108 Mc/s)

M = Medium wave (515 — 1620 kc/s)

L = Long wave (150 — 290 kc/s)

2 - Rotary knob on left: "Off-on" and volume

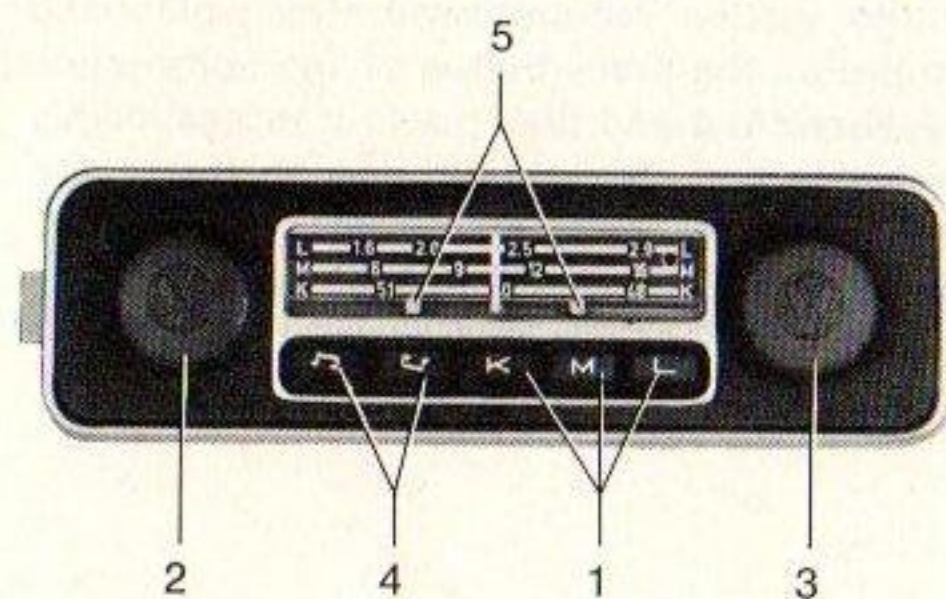
3 - Rotary knob on right: Tuning

4 - Two tone control press buttons:

left = bass right = treble

5 - Two station markers

At the back of set: Socket for tape recorder and connection for automatic aerial.



Wolfsburg

1 - 3 wave band press buttons:

K = Short wave (5.9 — 6.35 Mc/s)

M = Medium wave (515 — 1620 kc/s)

L = Long wave (150 — 290 kc/s)

2 - Rotary knob on left: "On-off" and volume

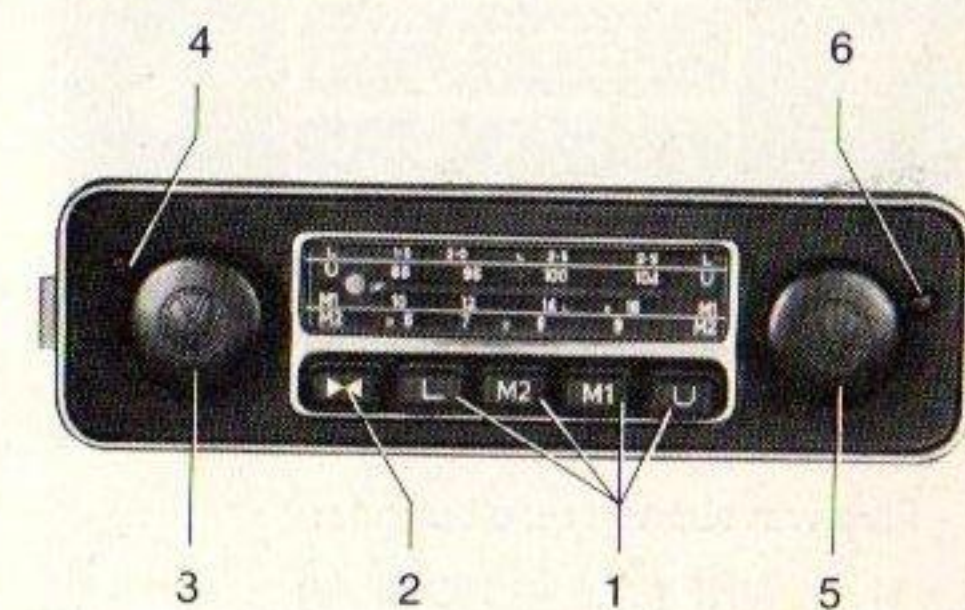
3 - Rotary knob on right: Tuning

4 - Two tone control press buttons:

left = bass right = treble

5 - Two station markers

At the back of set: Socket for tape recorder and connection for automatic aerial.



Hannover

1 - Four wave band press buttons:

U = VHF (87.6 — 104 Mc/s)

2 x M = Medium wave (515 — 1620 kc/s)

L = Long wave (150 — 270 kc/s)

M₁ = 515 — 920 kc/s

M₂ = 900 — 1620 kc/s

2 - One press button: Automatic station seeker

3 - Rotary knob on left: "Off-on" and volume

4 - Slide under left knob: Tone control
down = bass up = treble

5 - Rotary knob on right: Tuning

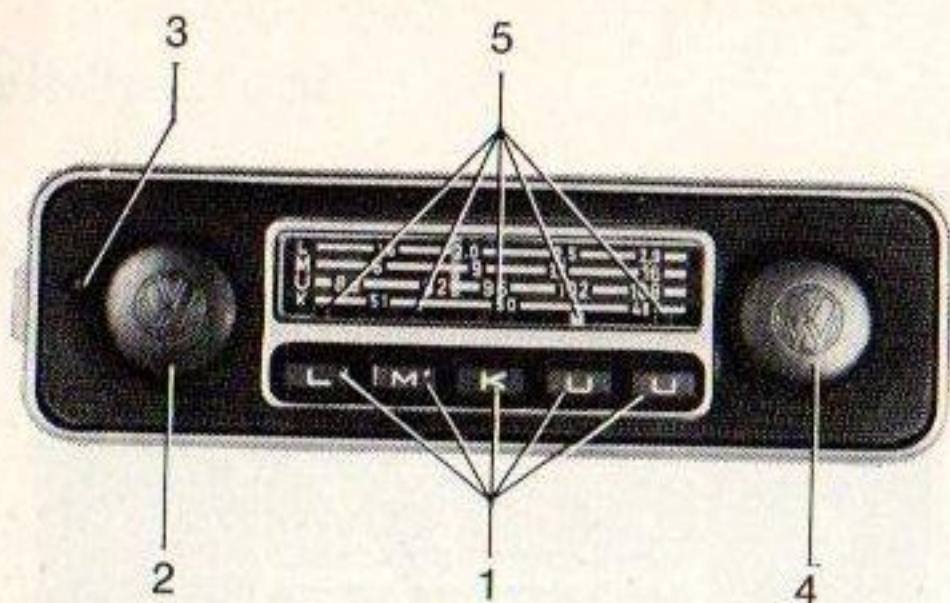
6 - Switch under right knob: Sensitivity switch for station seeker.

At the back of set: Sockets for tape recorder and station seeker remote control and connection for automatic aerial.

Function of knob for automatic station seeker: Pressing the left button starts the **automatic station seeker** which then tunes in to the near-

est station on the selected waveband. If started again the station seeker automatically finds the next nearest station.

Station retention: When a waveband is changed, the set remains tuned to the last station which was tuned by hand.



Ingolstadt (mono)

- 1 - Five waveband press buttons:
 - 2 x U = VHF (87.6 — 108 Mc/s)
 - K = Short wave (5.9 — 6.35 Mc/s)
 - M = Medium wave (515 — 1620 kc/s)
 - L = Long wave (150 — 290 kc/s)
- 2 - Rotary knob on left: "On-off" and volume
- 3 - Switch under left knob: Tone control
 - down = bass
 - up = treble
- 4 - Rotary knob on right: Tuning
- 5 - Five markers on lower edge of scale:
 - Shows the wavelength of the station button depressed.

At the back of set: Socket for tape recorder and connection.

Function of station buttons: Tune in exactly to the station required with the right hand knob. Pull the press button of the appropriate waveband out and then press it in again. This fixes this station to this button so that it can be selected again by just pressing the button. This can be done with any station desired.

In built-up areas and hilly districts the VHF reception is often of poor quality.

Use only a 2 ampere fuse (VW Part No. 111 035 307) in the radio connecting cable.

The telescopic aerial requires a certain amount of care otherwise it will get stiff and is then liable to bend when being pushed down.

From time to time, after washing the vehicle, the aerial should be wiped dry with a clean cloth and coated lightly with chrome grease (VW Part No. 000 096 067).

If local regulations require it, do not forget to obtain a radio license before using your car radio.

Fresh air ventilation and heating

1 - Fresh air control levers

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

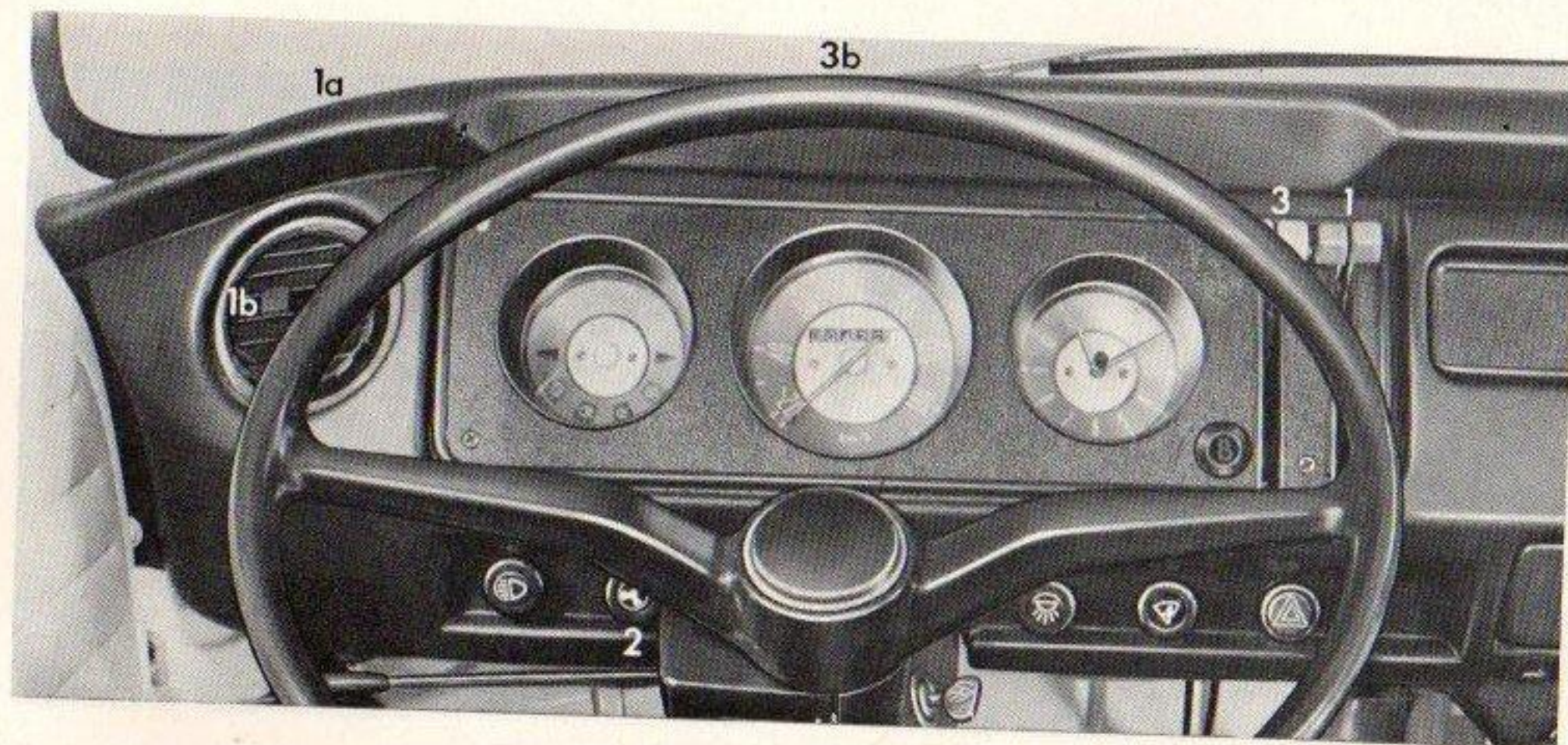
Levers up — fresh air intake closed
Levers down — fresh air intake open

The air enters at two vents — 1 a — at the lower edge of the windshield and through two round vents — 1 b — on each side of the instrument panel. The round vents can be turned to direct the air stream as required and each vent has a flap built in so that the flow of air can be regulated.

2 - Switch for fresh air fan *)

The two-speed fan is switched on by turning this switch.

The fresh air fan is only fully effective when the fresh air vents are open.



*) Optional extra

The Micro Bus L and Micro Bus models have two further round vents — 1 c — on the back of the front seats.

The indirect ventilation system provides a means of ventilating the cab and passenger compartment quickly and free of draughts with the windows closed. The air flow is regulated by slides in the cab doors when the vehicle is moving. The stale air is extracted through oval openings in the end faces of the front doors.

3 - Heating control levers

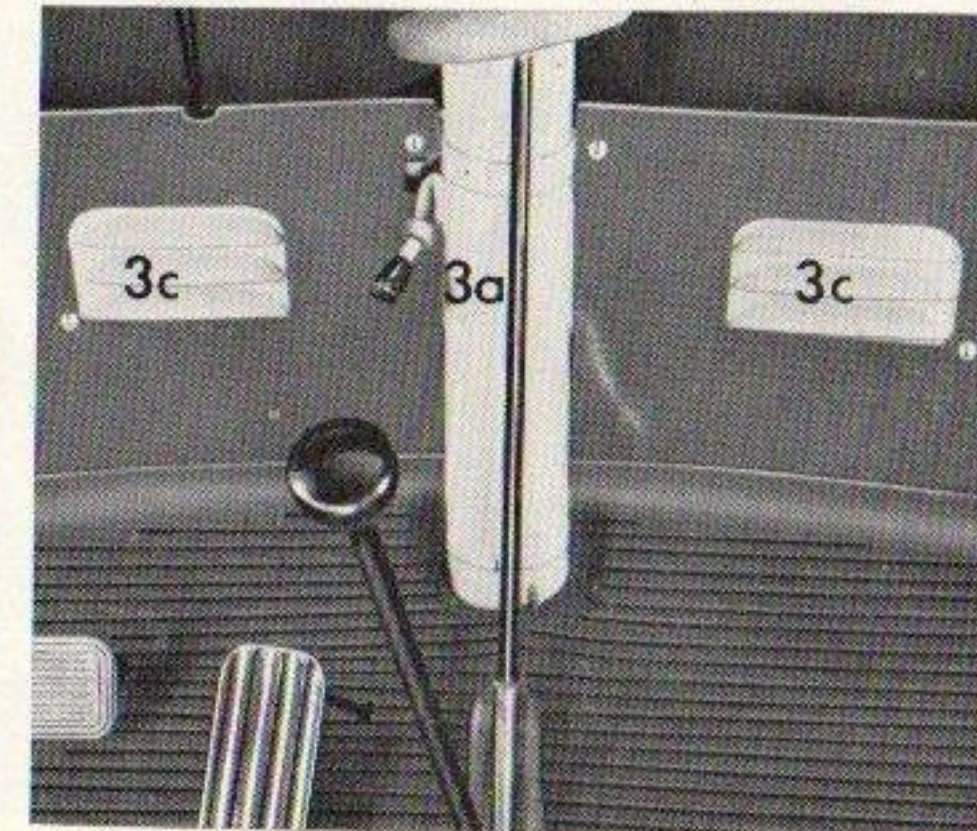
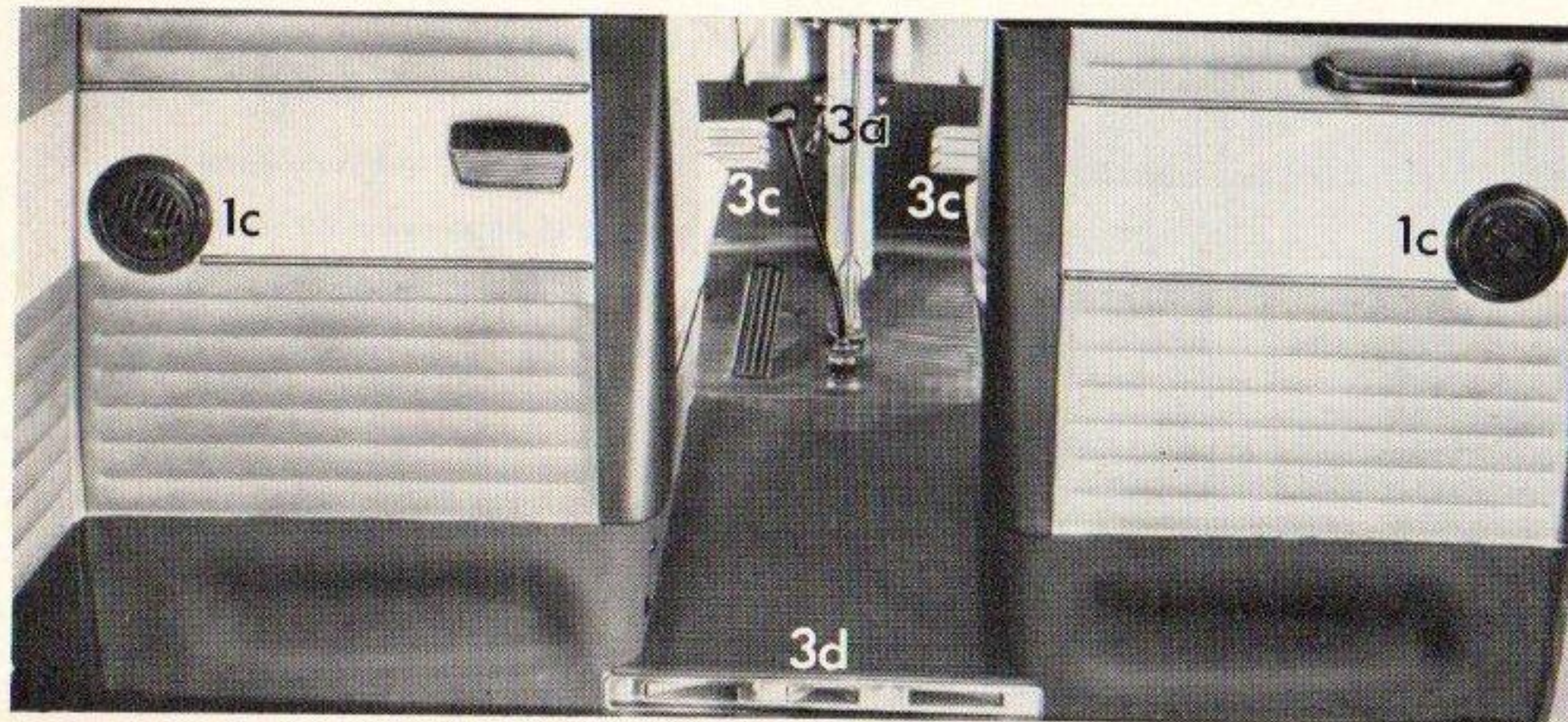
With the two red levers in the instrument panel, the flow of warm air can be controlled separately on each side of the vehicle. At the same time, the left lever switches on an electric blower *) in the engine compartment when moved to the lowest position. This boosts the flow of warm air from the engine fan.

Levers up — heat off
Levers down — heat on

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

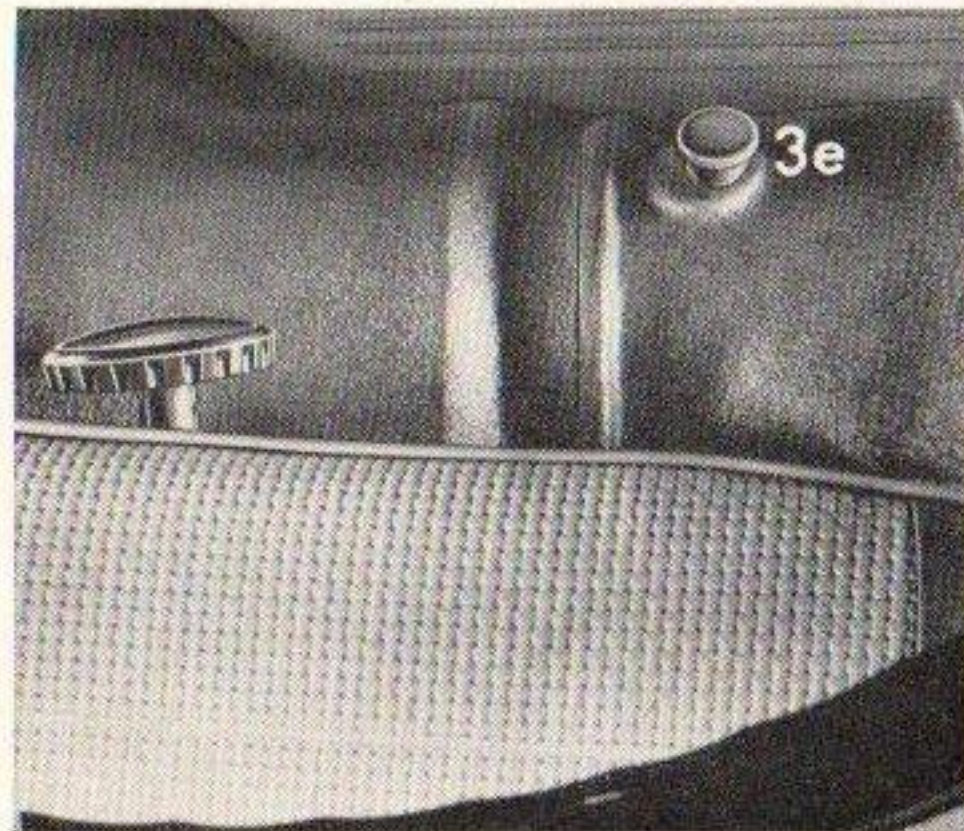
The lever — 3 a — on the front panel controls the distribution of warm air in **the cab**: If you push the lever down, the warm air comes out of the defroster vents — 3 b — at the lower edge of the windshield; if the lever is pushed up, the warm air comes out of the vents at footlevel — 3 c. The lever can naturally be set to any intermediate position.

*) Optional extra with 66 bhp engine

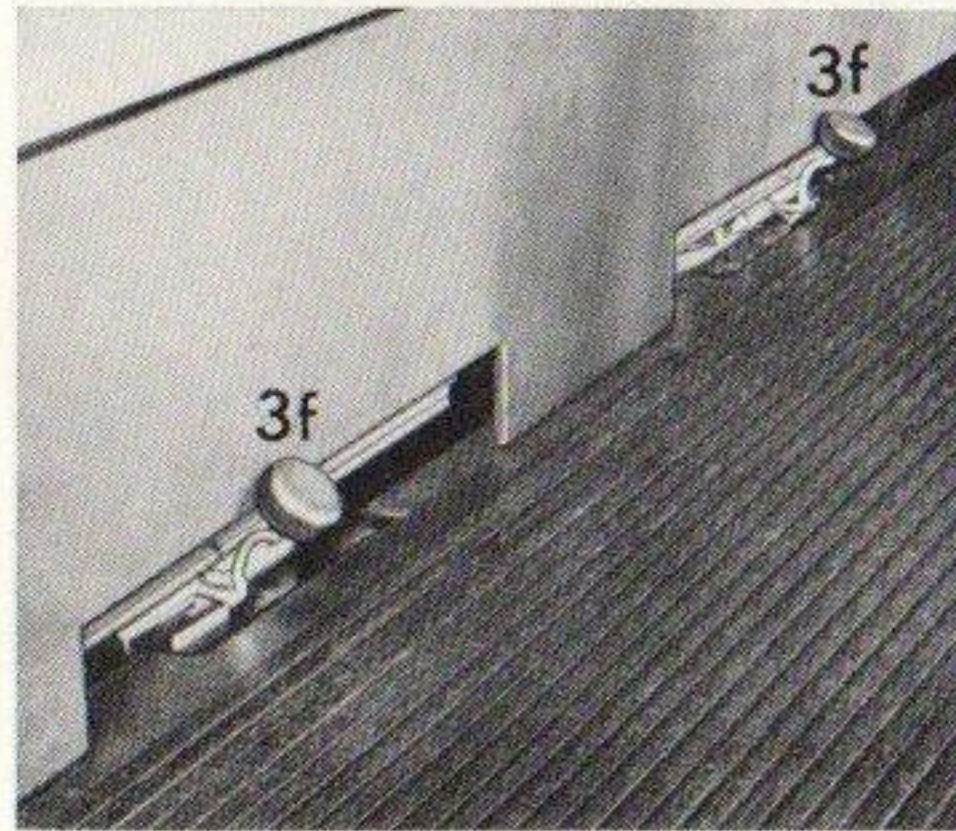


Three further warm air outlets are fitted in **the passenger compartment:**

The outlet — 3 d — in front of the center seat supplies warm air if the knob — 3 e — under the driving seat is pulled out with the heating on.



Warm air is also supplied to the two outlets under the rear seat — 3 f — when the heating is on. The levers must be pushed inwards to open the warm air flaps.



At low temperatures it is advisable to leave all the warm air flaps in the passenger compartment closed when first moving off and direct the flow of warm air to the defroster vents with the regulating lever — 3 a. This increases the flow of warm air to the windshield and helps to prevent steaming up when the air humidity is high. As soon as the windshield is clear the other outlets should be opened so that the interior of the body heats up as quickly and uniformly as possible.

Spare wheel and jack

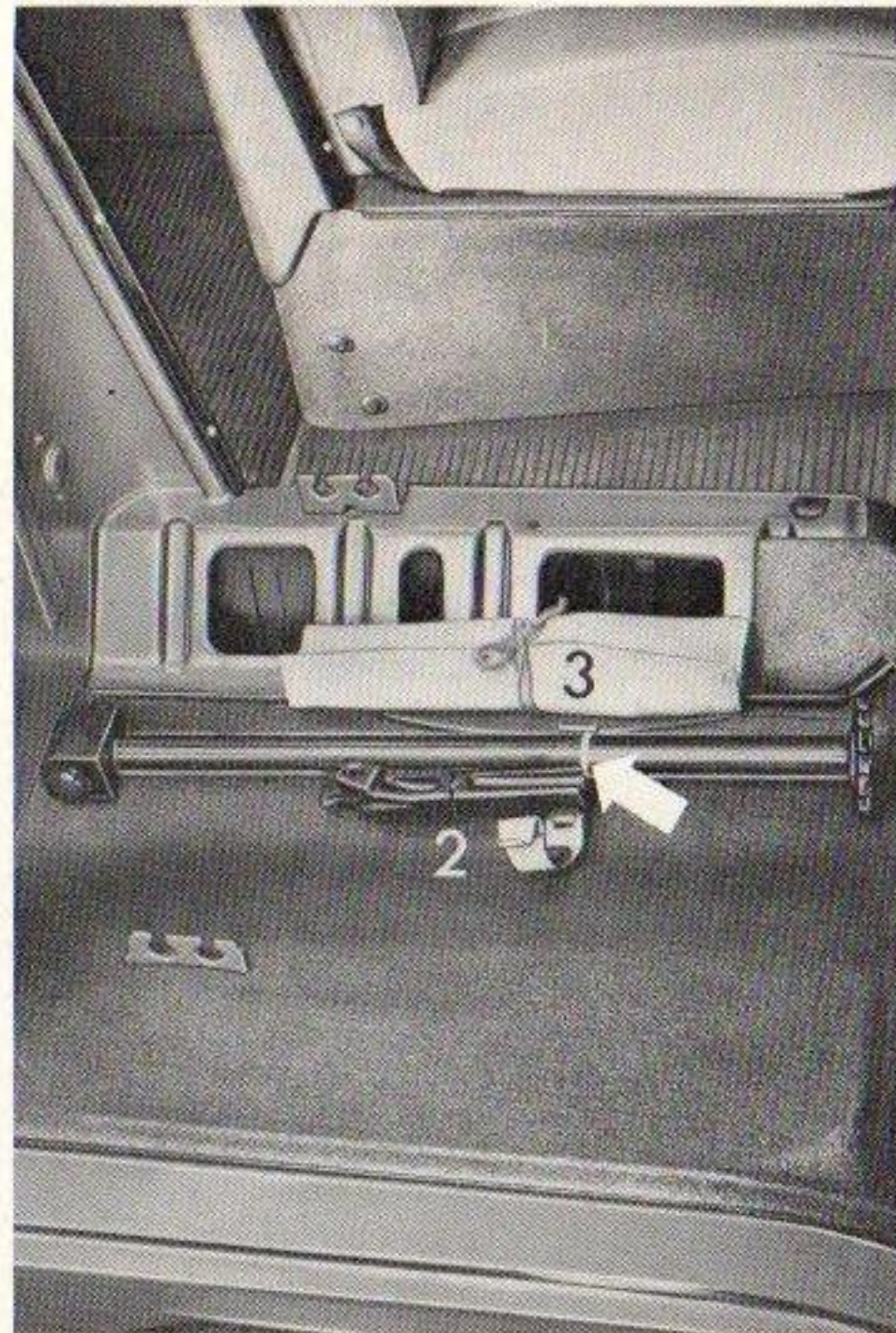
1 - Spare wheel

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



The spare wheel is located in a recess in the rear load surface. A plastic cap prevents the strap from being damaged by the rim of the wheel. Please ensure that the cap is located properly.

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



2 - Jack

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

The proper way to use the jack is described on page 43.

3 - Accessories

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

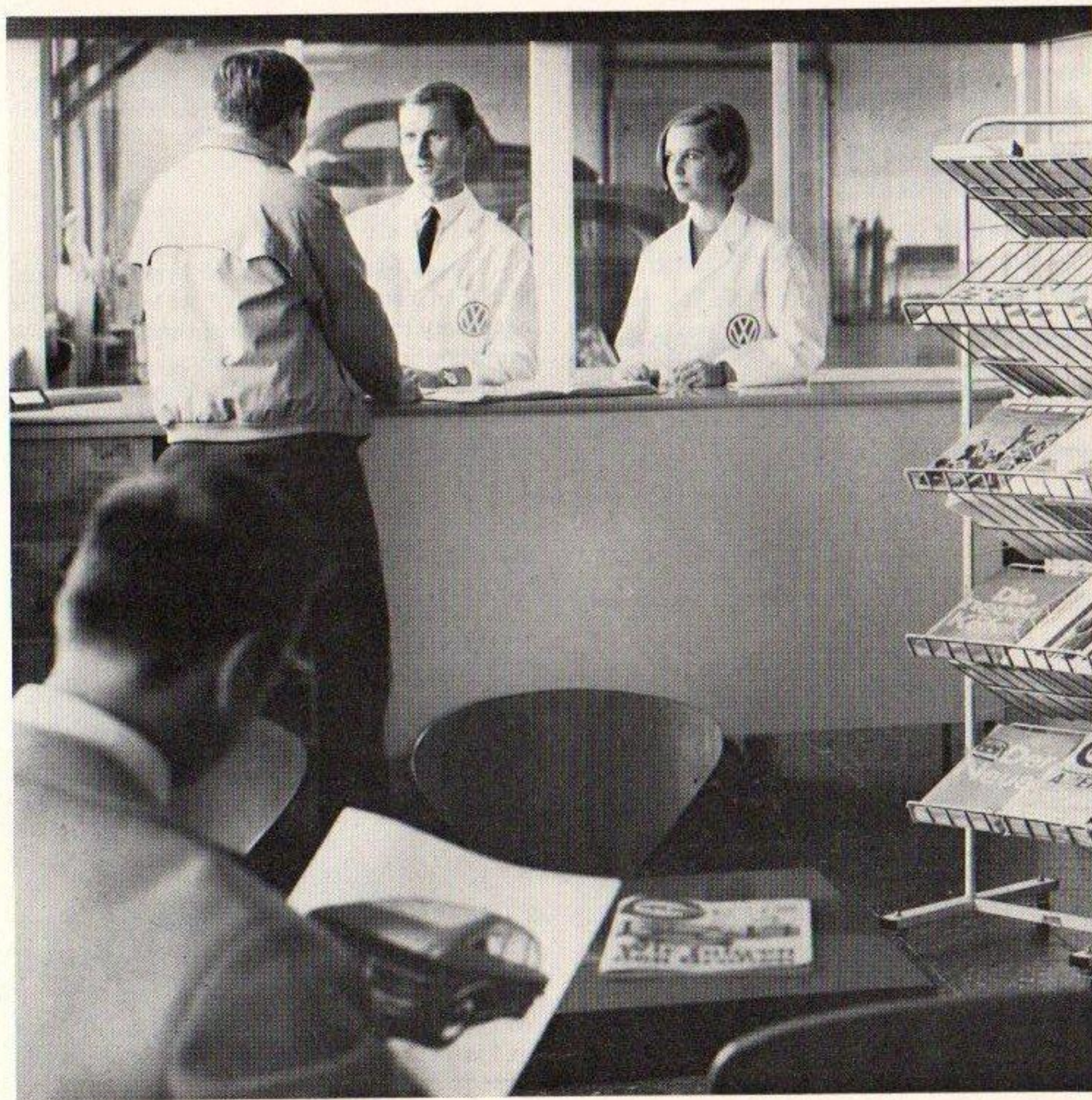
**There are two good things
about VW all over the world.**

**The Volkswagen.
And the Volkswagen Service**

You will find VW specialists everywhere. Not just within a radius of a few thousand miles but in 140 different countries. In more than 9000 authorised VW concerns.

You can rest assured that you will find VW Service everywhere — as reasonably priced and reliable as at home. We know, because we supply all VW concerns with everything they require. From the smallest replacement part to the largest special tool.

We don't just wish you pleasant motoring — we do something to keep it that way.



What to check

You can save yourself a lot of trouble if you check the fuel, the brakes and the lights before moving off and the oil level in the engine and the tire pressures at regular intervals.

Fuel: The fuel gauge in the instrument panel only works when the ignition is switched on (see page 18).

The fuel tank holds about 13 gallons (60 liters).

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



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

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

2 - If the pedal free travel increases suddenly, one of the two brake circuits may be defective.

You can drive to the next VW workshop but be prepared for longer stopping distances on the way to the workshop.

This is also shown by the lighting up of the **dual circuit warning lamp***) in the instrument panel when braking.

3 - The force required on the brake pedal will increase if the **brake servo** *) should fail any time.

You can still drive on but must use more force on the pedal to get the same braking effect, as when the servo is working.

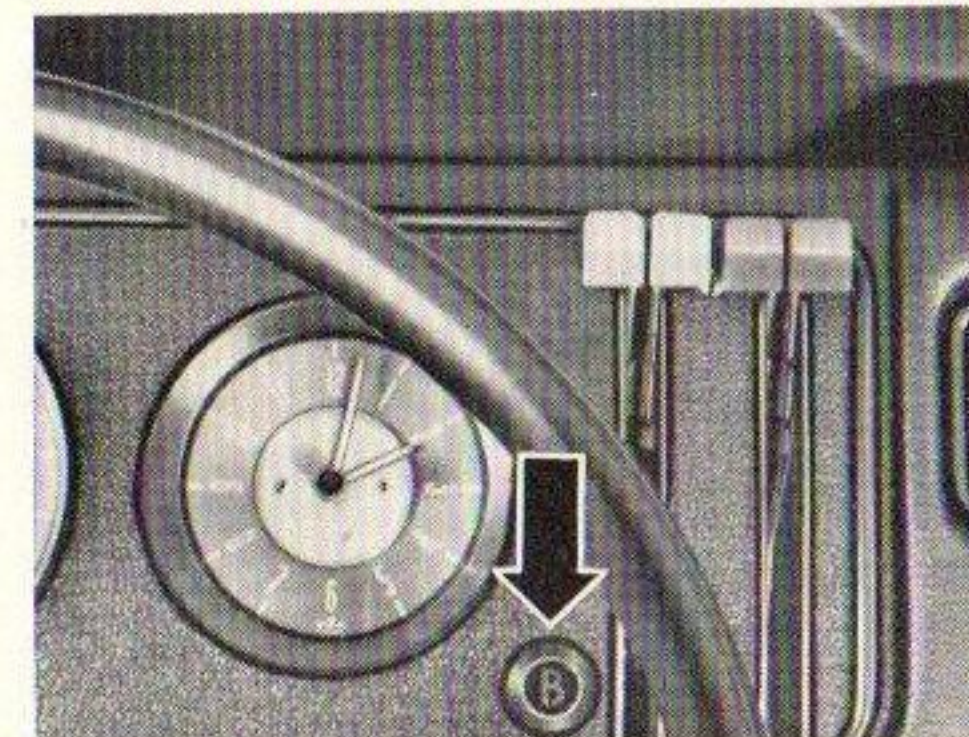
The lights include headlights, rear lights, license plate light, turn signals, **back-up lights** **) and brake lights.

The ignition must be switched on to check the headlights, turn signals, back-up lights and brake lights.

If a turn signal is defective, the warning lamp in the fuel gauge dial flashes much quicker than usual. The brake lights should work when the brake pedal is depressed. The back-up lights only come on when reverse gear is engaged.

From time to time, check the **brake warning light** *) by switching the ignition on.

If lamp does not light, or does not go out when the engine has been started, there is a defect in the electrical system. Please consult your nearest VW Dealer.



*) Optional extra.

***) Optional extra (Standard on Ambulance).

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

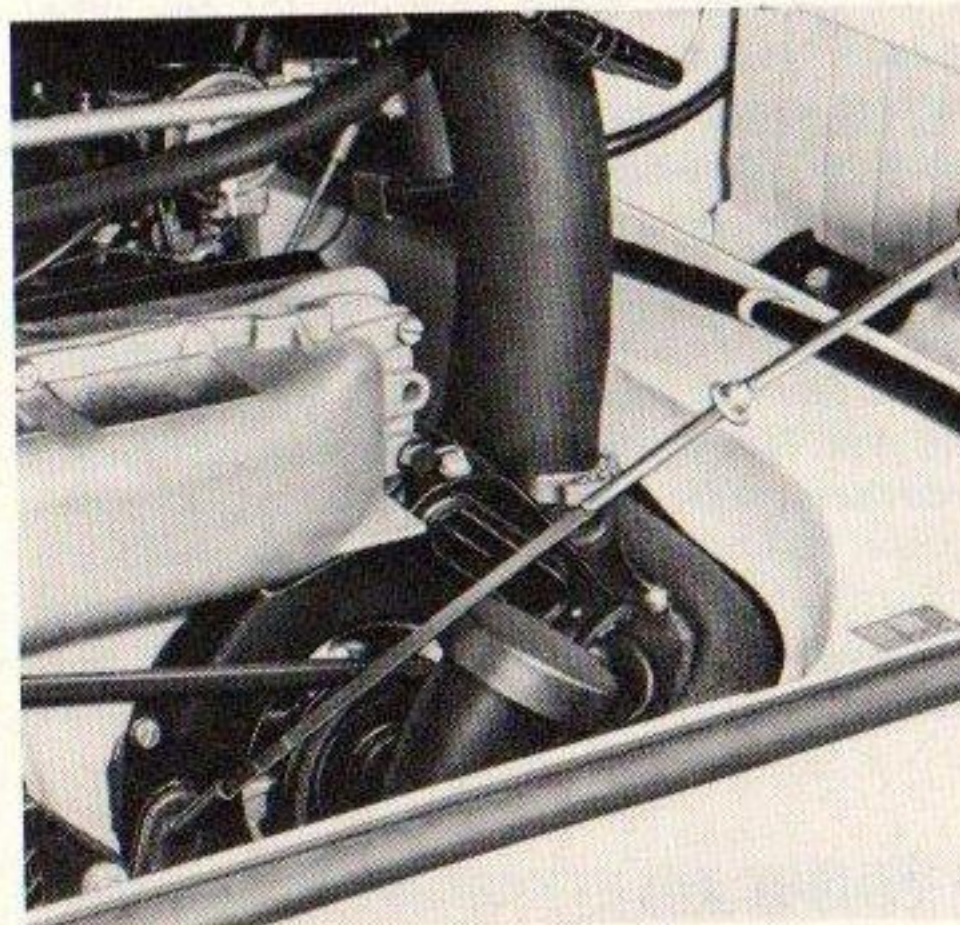
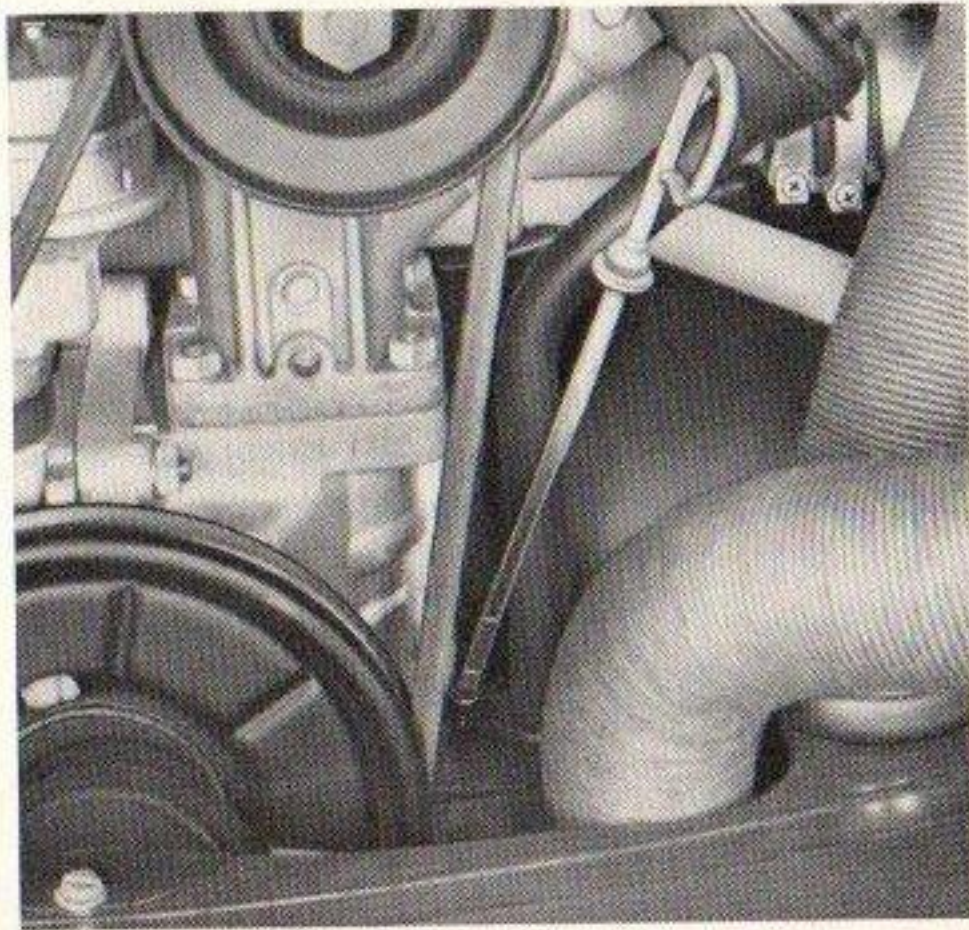
The vehicle must be on a level surface when the oil is checked, otherwise the dipstick reading will be inaccurate. Do not check the oil immediately after stopping the engine because the oil in circulation takes at least five minutes to drain down to the bottom of the crankcase.

To top up, select a good brand of gasoline engine HD oil. This will not damage the engine. Further details of the viscosity grades are given on page 56.

Correct tire pressures are essential in the interests of vehicle safety. Pressures which are too low or too high will reduce the service life of the tires and have a detrimental effect on vehicle roadholding. Even though the tires on your vehicle retain their inflation pressures for a long time the pressures should always be checked before starting a long trip and normally at least about once a week.

All the various pressures you will need are given in the list on page 72 and on a small plate fixed to the tank filler flap.

Checking oil level on the 66 bhp engine *)



Two more important points:

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

How this is done is described on page 67 or page 66.

- 2 - Never drive the vehicle with the battery disconnected. On the other hand, both terminals must be taken off before quick-charging the battery in the vehicle. Failure to do this can lead to damage to the electronic components of the electrical equipment.

Starting the engine

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

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

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

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

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

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

The warning lamps which come on when the ignition is switched on, go out when the engine starts:

The red warning lamp for the generator and cooling shows thus that the belt is in order and the generator working. If this light comes on when you are driving, stop at once and check the belt (see page 79). When this belt breaks, the engine cooling ceases to work. Do not drive on until a new belt has been fitted. If the warning lamp flickers occasionally at idling speed after a spell of fast driving it is harmless as long as it goes out again when accelerator is depressed.

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

On the 66 bhp engine *) this warning lamp is only a charging warning lamp. If it comes on when driving, you should also only go on to the next VW workshop to prevent the battery from being fully discharged.

*) Optional extra

If the red warning lamp for the oil pressure comes on while driving however, stop at once, switch the engine off and check the oil level. Add oil if necessary. Should the cause of the trouble be elsewhere, you are advised to get expert assistance.

Be careful when running the engine in confined spaces. Danger of asphyxiation.

Driving hints

You can drive your Volkswagen at full speed from the first day.

Remember that the tires do not give maximum adhesion at first and should be run-in at a medium speed for about 100 km.

New brake lining also require bedding in so try to avoid emergency stops in the first 200 km.

The permissible speed ranges for the various gears are:

	50 bhp engine	66 bhp engine *)
1st gear	0—12 mph	0—15 mph
2nd gear	10—25 mph	10—32 mph
3rd gear	15—45 mph	15—52 mph
4th gear	25—68 mph	25—78 mph

When a particular traffic situation makes it essential to move rapidly, you can accelerate to above these speeds in 2nd and 3rd gear for brief periods and make full use of the engine output. At maximum permissible rpm a speed limiter in the distributor breaks the ignition circuit and prevents the engine from being over-revved under load. Bear in mind, however, that full throttle acceleration puts fuel consumption up considerably. It is more economical to drive smoothly and keep the top speed fairly constant. Very fast, racy-sporty driving, alternating between full throttle and hard braking will mean more frequent visits

*) Optional extra

to a gas station, not to mention increased tire and brake lining wear.

You can drive very economically between:

	50 bhp engine	66 bhp engine *)	
10 and 20 mph	10 and 20 mph		in 2nd gear
15 and 30 mph	15 and 40 mph		in 3rd gear
25 and 55 mph	25 and 45 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

moving off and changing gear. He always depresses the clutch fully when changing gear, he changes down into the appropriate gear in queues and city traffic instead of slipping the clutch and never uses the clutch pedal as a "rest" for his left foot.

The same applies to the gear lever. Do not make a habit of resting your hand on the gear lever like some drivers do — particularly in town traffic. The pressure of the hand is transmitted to the shift forks in the gearbox and can cause premature wear on the forks. After changing gear — hand off the gear lever.

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

Water reduces the coefficient of friction of the brake linings. The brake discs particularly are liable to get wet when driving through water — and also when the vehicle is washed. Although the discs dry quickly when the brakes are applied, the full braking effect is delayed slightly. In addition to this the tire adhesion is also reduced on wet roads but you cannot do anything about this. You can, however, take care when driving, remain at a safe distance behind preceding vehicle particularly when roads are wet and slippery. Safety first the motto.

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

Winter operation

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

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

Tires with badly worn treads are very dangerous particularly in the winter so ensure that they are replaced in good time. Winter tires are no longer fully effective when the tread has worn down to a depth of 4 mm.

M+S tires with special heavy treads give good roadholding in snow and slush. Better still are M+S tires with studs which increase the safety margin even on hard snow and ice. M+S tires with studs should be run at moderate speeds when new in order to give the studs time to settle.

Winter tires should always be fitted on all four wheels.

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

The specific characteristics of winter tires can be improved by raising the tire pressures to 0.2 kg/cm² (3 psi) above the normal operating pressure for the tire concerned.

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

Radial ply tires are also good in winter conditions. This applies not only to the Micro Bus L models, the Ambulance and the Fire Truck which are fitted with these tires in production but to all other Transporter models.

If conditions are not too severe these tires can be fitted instead of M+S tires. M+S and M+S studded tires of the radial ply type have the very best characteristics for winter use. The pressure increase of 0.2 kg/cm² (3 psi) recommended for normal winter tires is also applicable to radial ply winter tires.

Snow chains: Only thin chains which do not stand clear of the tire tread and inner side wall more than **15 mm** including tensioner, are

suitable. The snow chains in the VW range of accessories fulfil these conditions. Contrary to winter tires, snow chains are usually only fitted on the driving wheels. If, in exceptional cases, it is necessary to fit chains on the front wheels as well, the steering should not be locked hard over as otherwise the chains may rub in the wheel housings. This applies particularly when snow chains are fitted on winter tires. When driving over long stretches of road which are free of snow, the chains should be removed. They serve no useful purpose here but merely damage the tires and wear out quickly.

Engine oil of SAE 30 grade will tend to thicken at temperatures around freezing point and may cause difficult starting. As soon as winter temperatures are expected, change over in good time to a thinner grade of engine oil. Details of the various oils to be used are given on page 56.

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

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

Transmission oil of SAE 90 grade can generally be used all the year round. Only in countries where the average temperature is fairly low is it necessary to use the thinner SAE 80 hypoid transmission oil.

In countries with arctic temperatures below -25°C (-13°F), ATF (Automatic Transmission Fluid) can be used in the transmission. When the temperature rises the ATF **must** be replaced by SAE 80 or SAE 90 transmission oil.

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

distances and in city traffic, the battery should, therefore, be charged from an external source from time to time. Before quick-charging the battery in the vehicle disconnect both terminals to avoid damage to the electronic components of the electrical equipment. Further details are given on page 52.

The spark plugs should not have excessively large gaps especially in the winter. The gap should be 0.7 mm (.028 in.)

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

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.

Trailer towing

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

A frozen door lock can be thawed out easily by using a lock de-freezing agent such as offered in the VW car care materials. This solution has a preservative effect so that the lock cylinder is not damaged even if the solution is used often. It does not damage paintwork either.

Door lock de-freezer, plastic bottle (100 cc)	000 096 106
Door lock de-freezer spray (16 cc — pocket size)	000 096 107
Refill for 000 096 107 (300 cc)	000 096 108

Frozen windows can be sprayed with our defroster spray. After the spray has worked for a short period, the ice can be wiped off.

Defroster spray (300 cc)	000 096 109
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Icing on the inside of the windows can be prevented by rubbing the glass with a defroster cloth.

Defroster cloth	000 096 110
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Towing a trailer places a considerable strain on the body, transmission, clutch and brakes of the towing vehicle.

In order to avoid damage to your Volkswagen, please note the following instructions and driving rules which are also written with road safety in mind:

1 - Do not exceed the maximum trailer weight specified for the vehicle.

2 - The towing bracket must be installed in accordance with the instructions from the VW factory. Towing brackets which are installed in the factory as optional extras or service installed as VW accessories in VW workshops fulfil these requirements. Otherwise the brackets must be fitted exactly in accordance with the fitting instructions supplied with them.

Check whether local regulations require the fitting of a towing bracket to be recorded in the vehicle documents.

The operation of the trailer turn signals must be shown by a special warning lamp on the instrument panel.

When using the VW trailer turn signal/emergency light relay, this warning lamp only works when the trailer is also equipped with 21 Watt turn signal bulbs.

In the 7 point trailer socket there is a terminal (54 g) for an additional current supply (trailer interior lighting for example). When using such lights, please remember that the battery capacity is limited.

3 - The pressure of the trailer draw bar on the ball of the low bar, known as the "nose weight", has an influence on the stability of the combination. In the interests of good driving properties the nose weight should be at least 25 kg (55 lbs.) and should not exceed 40 kg (88 lbs.). In special circumstances however, nose weights of up to a maximum of 50 kg (110 lbs.) are permitted.

4 - A second outside driving mirror is essential in most cases. If the trailer is wider than the vehicle, both outside mirrors should be on extending telescopic arms so that a good view to the rear is always obtained.

5 - Always drive at a moderate speed. In lots of countries there are speed restrictions for vehicles towing trailers.

6 - Ensure that the tires have good treads and that the inflation pressures are correct. Keep tires inflated to the pressures for maximum load. It is essential that the trailer tires have the same pressures on both sides.

When the towing vehicle is fitted with studded tires, trailers with brakes should also have studded tires.

7 - Use the clutch carefully when towing. Do not accelerate more than necessary when moving off and never slip the clutch longer than necessary.

8 - Use brakes in good time and as gently as possible. Practise braking properly with a trailer with over-run brakes: Apply brakes gently at first then brake rapidly. In this way you can avoid the jerking which is caused by locked trailer wheels.

9 - Change down in good time when going uphill and downhill.

10 - Trailer towing always puts the fuel consumption up. This is due to the extra weight and the higher rolling and air resistances.

11 - If driven properly your VW will climb any normal road gradient when towing a trailer. But do not demand the impossible. The hill climbing figures given are for the fully loaded vehicle alone and it is obvious that these figures must be reduced considerably according to trailer weight. Furthermore, the engine output decreases as the height increases: For every 100 m (330 feet) of altitude climbed, the engine output drops about 1% as a result of the drop in atmospheric pressure. When climbing high mountain passes, these facts must be borne in mind.

Care of car

Even the finest paint requires regular and proper care if it is to retain its gloss over the years.

This is easy to understand if you stop to think that the paint is continuously exposed to the influence of sunlight, rain, industrial fumes, soot, dust and dirt.

In the winter, all parts of the vehicle are subjected to even more severe climatic conditions and aggressive salt solutions. It is advisable to clean and wax the vehicle more often at this time of the year.

Every VW Dealership has stocks of car cleaning materials for the Volkswagen. These materials have been tested by us and found to give the best results. The order numbers of these materials are given here.

Washing

Wash vehicle frequently with clear water but do not wash it in bright sunshine.

Rinse sponge often to avoid scratching the paintwork.

If water alone is not adequate, add a shampoo to the water and apply with a sponge or soft brush.

Then rinse vehicle well and dry with a leather.

Tin of shampoo (300 cc)	000 096 112
Sponge	000 096 151
Leather	000 096 155
Auto cloth	000 096 150
Brush	000 096 157
Washing gloves	000 096 153
Nylon washing gloves	000 096 160

Waxing

Wax as often as possible. This will prevent dirt sticking to the paint surface and industrial grime from penetrating into the paint.

Then wax paint after washing and rub until paint shines again or just put wash/wax solution in second lot of water regularly. Wash with this solution and dry with leather.

Tin of wax (250 cc)	000 096 011
Tin of wax (1000 cc)	000 096 012
Tin of wash/wax solution (150 cc)	000 096 121
Tin of wash/wax solution (250 cc)	000 096 122

Polishing

Should only be done if paint has lost shine and gloss cannot be brought back with wax. After treatment with polish the vehicle must be waxed.

If paint is cleaned with polishing wax it need not be waxed afterwards.

Tin of paint polish (250 cc)	000 096 001
Tin of paint polish (1000 cc)	000 096 002
Tube of polishing wax (210 grams)	000 096 021
Bag of polishing cotton (200 grams)	000 096 161
Bag of polishing cotton (500 grams)	000 096 162

Patching up paint damage

Small marks in the paint such as scratches or stone damage can be repaired with genuine VW touch-up brushes or spray cans before the marks rust. A sticker behind the seats in the drivers cab gives the color designation and number of the original finish.

Removing industrial grime

Treat paint surfaces with industrial grime remover as soon as possible.

The solution must be rinsed off very thoroughly.

Pay particular attention to seams and joints.

Bottle of industrial grime remover (500 cc)	000 096 091
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Removing tar spots

Treat paint surfaces with tar remover as soon as possible. After treatment, rinse traces of remover off with detergent solution (water and shampoo).

Tin of tar remover (150 cc)	000 096 051
Tin of tar remover (250 cc)	000 096 052

Removing insects

Dried on insects can be cleaned off paint with insect remover.

Wash surfaces afterwards.

Clean dirty windshields with insect sponge.

Tube of insect remover (80 grams)	000 096 081
Insect sponge	000 096 083

Care of chromed parts

Before applying chrome cleaner, the parts must be washed and dried.

Then clean with chrome polish from tube. This polish contains a preservative so that it cleans and protects the chromed parts.

Liquid chrome protector should be used to prevent corrosion of parts for a long period. Apply with spray gun where possible.

Protective film remover is used to remove the film.

Tube of chrome polish (80 grams)	000 096 061
Tin of chrome protective film (500 cc)	000 096 063
Tube of chrome grease (80 grams)	000 096 067
Tin of chrome protective film remover (500 cc)	000 096 167

It is advisable to use spray gun 000 096 064 to apply liquid cleaners and polishes.

Cleaning leatherette

If not very dirty, clean with soft cloth or brush.

If very dirty, clean air-permeable leatherette with liquid plastic cleaner. Apply with absorbent plain cloth. After cleaning, rub area dry with a soft cloth.

Non-permeable plastic material can be cleaned with plastic cleaning paste.

Plastic cleaning paste (200 grams)	000 096 071
Liquid plastic and cloth cleaner (500 cc)	000 096 072
Liquid plastic cleaner (500 cc)	000 096 073

Cleaning windows

Windows can normally be cleaned with a sponge and warm water and dried with a leather. Do not use this leather for the paintwork because traces of paint cleaner and polish will cause streaks to appear on the windshield. Insects can be removed with the insect sponge and other dirt, oil deposits etc. with window cleaner.

To remove silicon, grease and oil, use "A'Silic" powder. Sprinkle the powder on the screen and rub it off. Silicon remover can be added to the washer water to keep the windshield clean.

Bottle of window cleaner (200 cc)	000 096 105
Sachet of window cleaner (35 cc)	000 096 101
Insect sponge	000 096 083
Anti-mist cloth	000 096 165
Window cleaner	000 096 152
"A'Silic" powder (125 cc)	000 096 075
Silicon remover (120 cc bottle)	000 096 093

Windshield wiper blades

Blades which are clogged with oil and insects should be removed and cleaned with a hard brush and a detergent solution. The blades should be replaced once or twice a year according to condition.

Door and window weatherstrips

To keep weatherstrips flexible and intact rub them occasionally with talcum powder or glycerine.

Airing the body

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

The driver's seat

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

Pick-up cover

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

The tires

Tires should be replaced when the tread depth is only 1 mm all round and on full tread width because this is the absolute limit for safe usage. The original tires of your vehicle are provided with built-in wear indicators. These are 12 mm wide bars (see illustration) molded into the bottom of the tread grooves which appear when the tread depth has worn down to 1.6 mm. The wear indicator bars are spaced evenly round the tire and there are from 4 to 6 bars according to make of tire. When the indicators appear in two or more adjacent grooves it is a clear sign that the tire is worn down almost to the permissible limit. Tires worn to this extent should be replaced as soon as possible. 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.

For safety reasons all four tires should be renewed at the same time or at least in pairs on the axles. For the same reasons only use tires of the same make and same type of tread.

New tires should be run in for about 100 km at medium speeds because they do not give maximum adhesion at first.

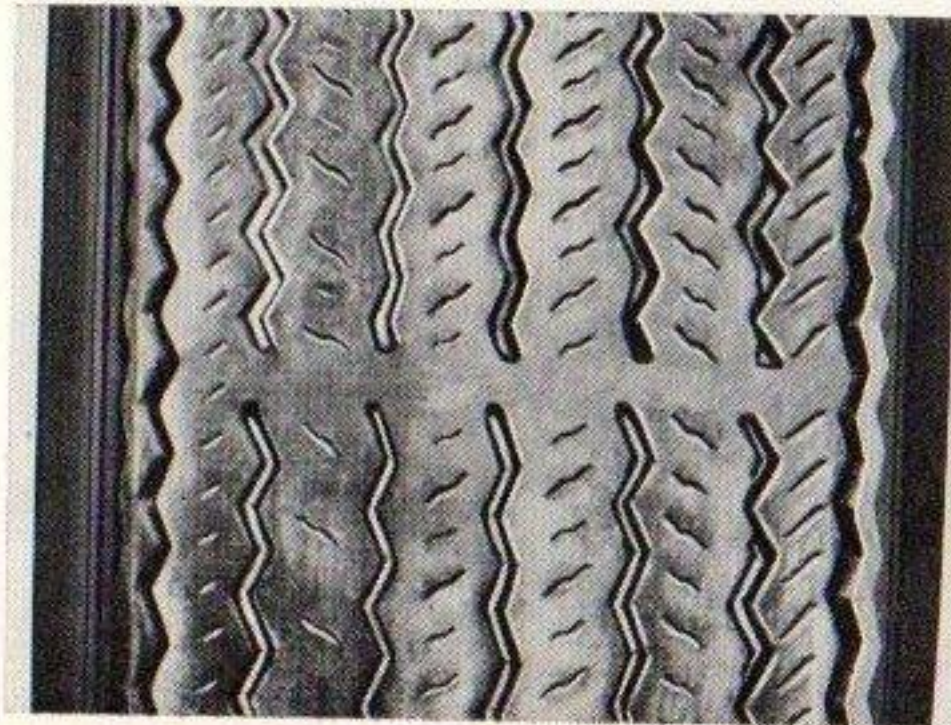
In addition to checking pressures regularly and driving carefully, the following points should be remembered in connection with tires:

Check tires for damage occasionally and remove foreign bodies.

Keep oil and gasoline off the tires.

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

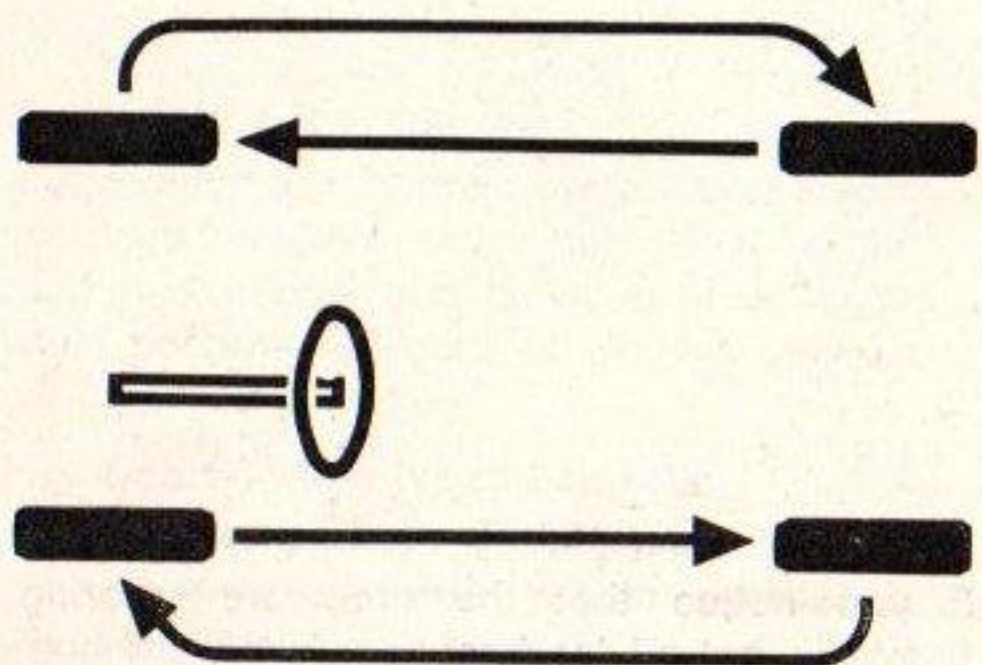
Replace missing valve dust caps as soon as possible.



If you notice that the tires are wearing unevenly, get advice from your VW workshop.

You should bear in mind, however, that uneven tire wear is not always due to some vehicle condition such as incorrect wheel alignment, etc. It is often the result of a particular style of driving, for example fast cornering. If the tire pressures are neglected for a long time this can also cause abnormal wear.

To avoid having to replace the tires earlier than necessary in such cases it is advisable to change the tires round as shown here — without altering the direction of rotation. Afterwards the inflation pressures must be corrected and the wheel nuts tightened to 14 mkg (100 lb. ft.).



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

185 R 14 C radial ply tires are fitted in production on the Micro Bus L, the Fire Truck and the Ambulance. They can naturally be fitted on all Transporter models in order to take advantage of the positive characteristics of these tires such as longer service life, increased skid resistance, better cornering properties, shorter braking distances and lower roll resistance.

Tubeless radial ply tires may only be fitted to VW vehicles in conjunction with the safety rims (hump type) which are installed in production. Bear this in mind when changing wheels. If in doubt, see your VW Dealer. In the interests of vehicle safety it is essential to ensure that the tire pressures are correct and uniform on each axle when radial ply tires are fitted. Note the pressures recommended for radial ply tires on page 72 and have the pressures checked regularly. All our other instructions on looking after tires also apply, without exception, to radial ply tires.

Do-it-yourself tips

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

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

Changing wheels

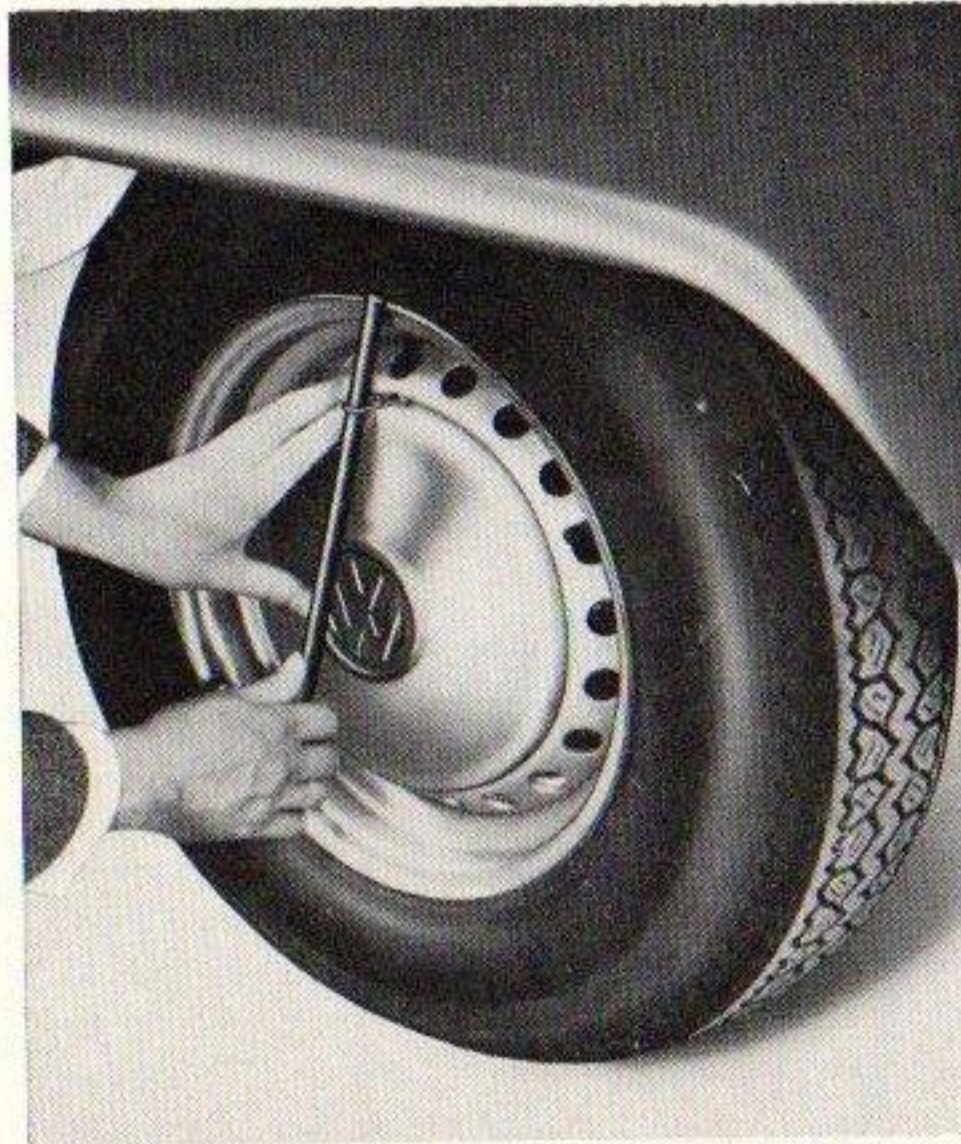
Apply the handbrake and block wheel on opposite side to prevent vehicle from rolling.

Remove wheel cap with thin end of lever or 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.

When lever is used place thin end between wheel cap and disc and lever cap off.

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

Insert jack into square tube under body and turn hexagon at top of jack until base of jack touches ground. At the same time, push top end of jack firmly towards the vehicle so that jack is more or less vertical.



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

Raise or lower vehicle as necessary and place spare wheel on the studs.

Screw nuts on and tighten them with the wrench without the bar.

While tightening, move wheel to and fro so that it is centered on the hub or brake drum by the rounded shape of the nut contact surface.

Lower vehicle.

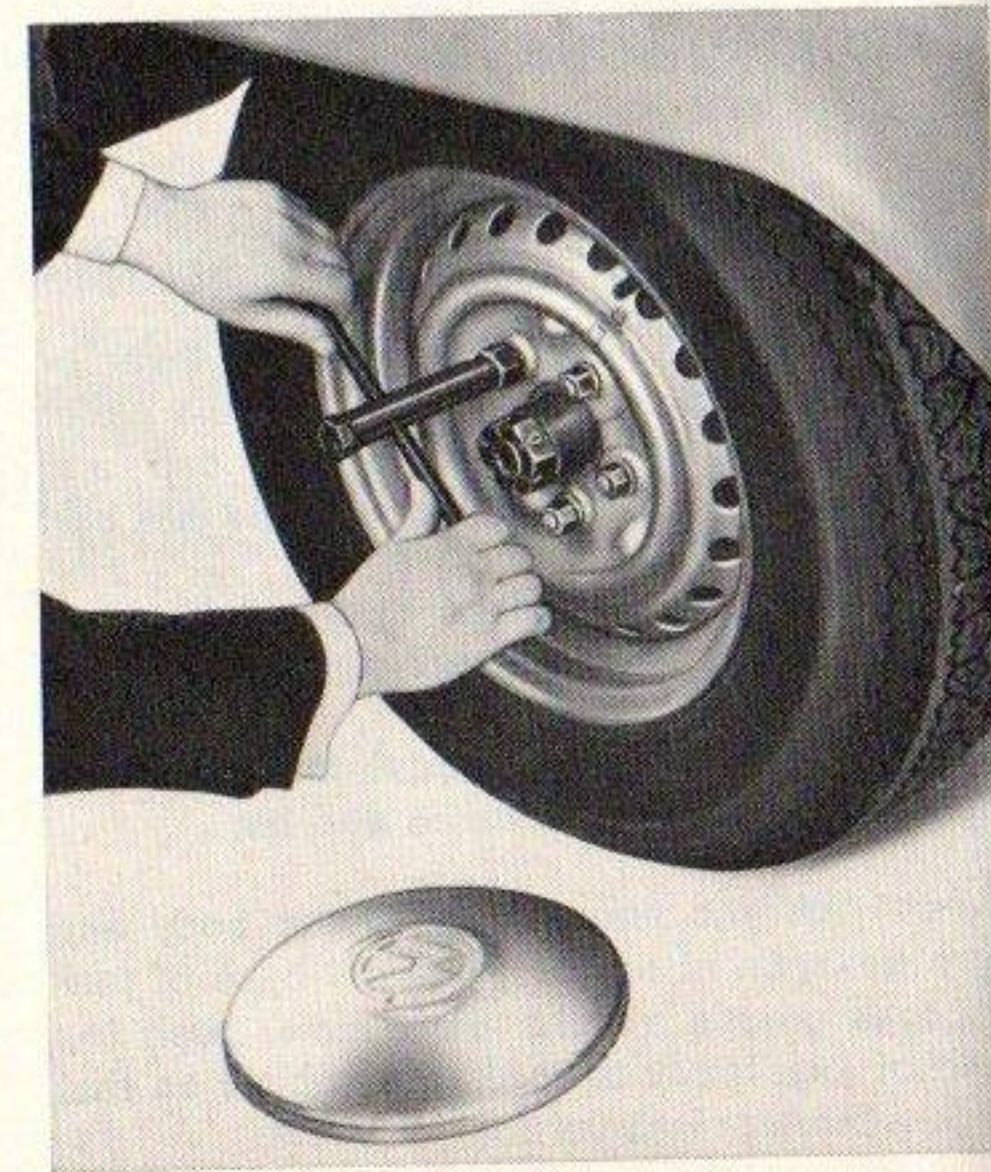
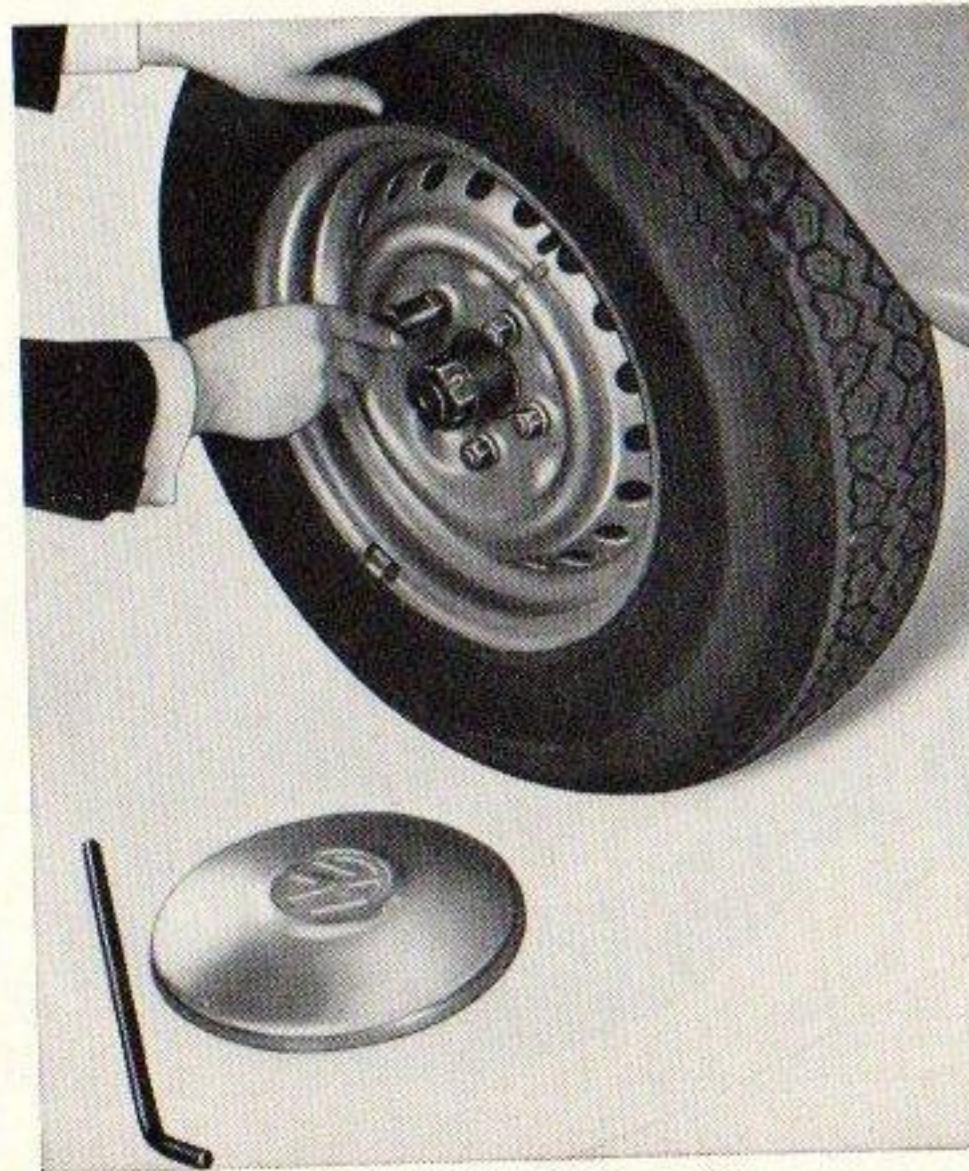
Insert bar in wrench halfway and tighten nuts uniformly and diagonally.

Install wheel cap by giving it a smart blow on the edge with the hand.

Please have the wheel nuts checked with a torque wrench as soon as possible after changing a wheel. The torque should be 100 lb. ft. (14 mkg).

Do not forget to check the tire pressure in the wheel which has been fitted. See list of tire pressures on page 72.

Have damaged tire repaired as soon as possible.



Adjusting headlights

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

1 - Headlight bulb

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

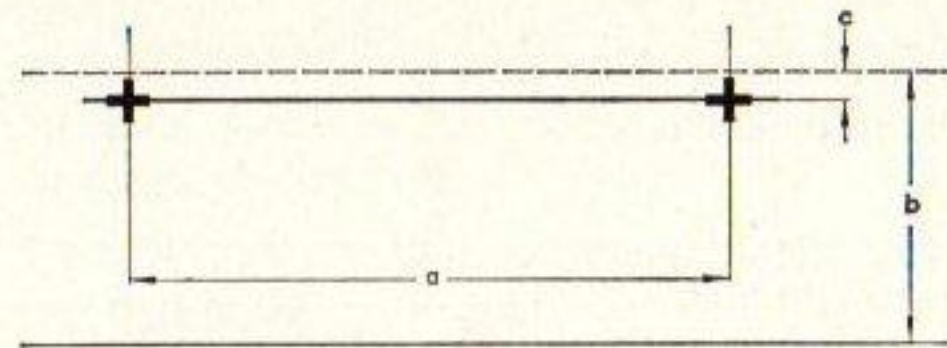
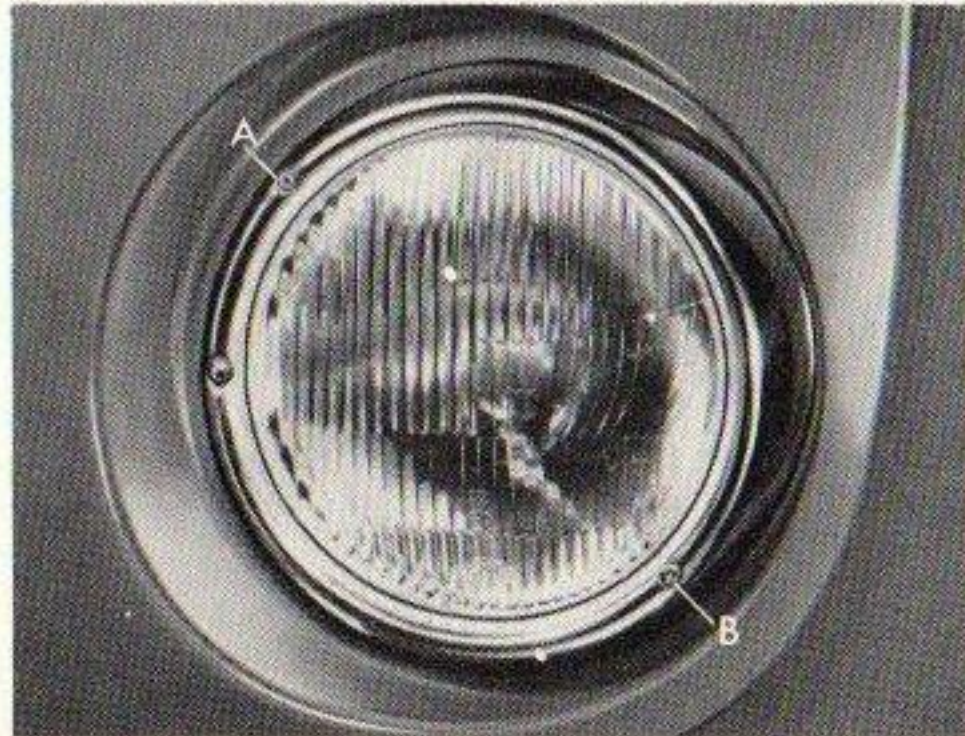
The headlights can be aimed with the vehicle fully loaded or when it is unladen:

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

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

A - Vertical aim

B - Lateral aim



Sketch 1

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

Aim the headlights individually by turning the screws — A — and — B — in the headlight rim with low beam switched on. Cover up the second headlight.

The headlights are correctly aimed when the light-dark border line is horizontal on the adjusting line to the left of the cross and the angle in the light-dark border line is exactly on the cross.

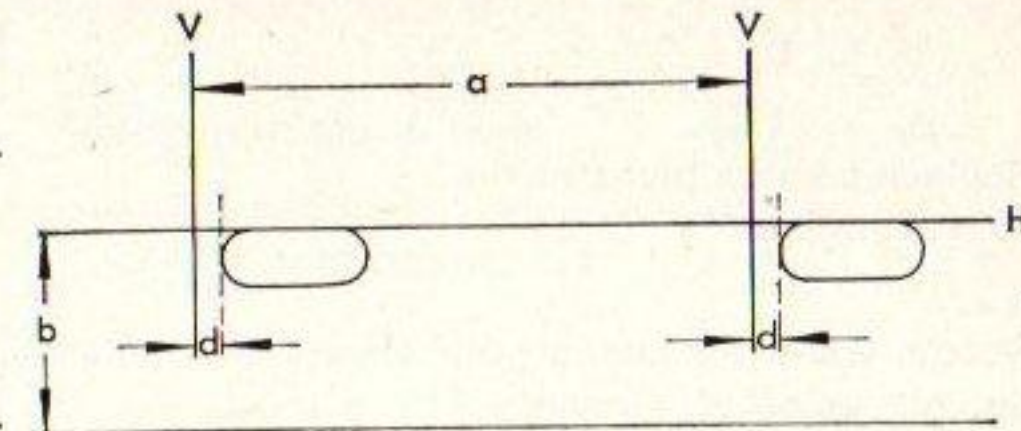
2 - Sealed Beam unit

On Volkswagen Transporters with Sealed Beam headlights use sketch 2 and aim beams as follows:

Position the vehicle on a level surface 7.6 m (25 ft.) away from a vertical wall. The drivers seat must be loaded with one person or a weight of 70 kg (154 lbs.).

Draw three setting lines on the wall to the measurements in sketch 2. The longitudinal center line of the vehicle must be aligned with the center between the two vertical lines and at right angles to the wall.

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



Sketch 2

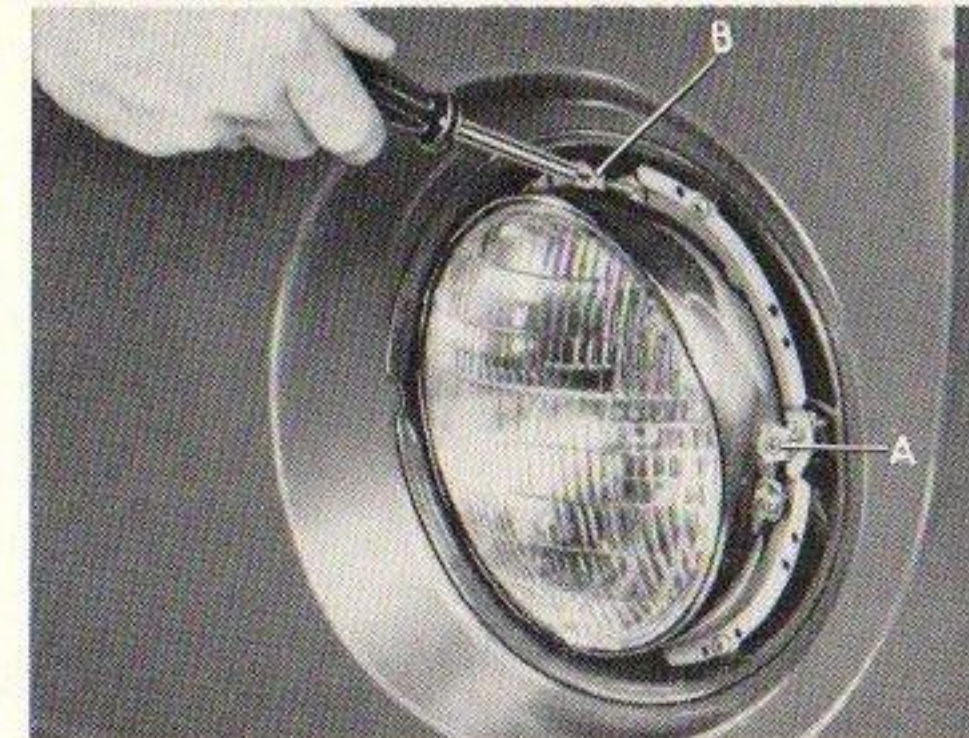
a = Distance between headlights = 42½ in.
b = Height of headlight centers from ground at a distance of 25 ft. from screen.
d = 50 mm (2 in.).

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

The headlights are correctly aimed when the top edge 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.

A - Lateral aim

B - Vertical aim



Replacing spark plugs on the 66 bhp engine **)

Detach warm air hoses from blower and take end pieces off air cleaner.

When removing and installing the plug in No. 4 cylinder — which is the one on the left nearest rear of vehicle — the cleaner end piece need not be taken off but the carburetor linkage must be pushed to the full throttle position.

**) Optional extra

Bulb chart

	V = Volts German designation	W = Watts Part No.
Headlight bulb	A 12 V 45/40 W	N 17 705 3
Parking light	HL 12 V 4 W	N 17 717 2
Turn signal, front and rear	RL 12 V 21 W	N 17 732 2
Stop/tail light	SL 12 V 21/5 W	N 17 738 2
Licence plate light	G 12 V 10 W	N 17 719 2
Warning lights and instrument lights	W 12 V 1.2 W	N 17 751 2
Interior light	K 12 V 10 W	N 17 723 2

Ambulance

Back-up light*) and Red Cross sign	RL 12 V 21 W	N 17 732 2
Interior light (neon tube *)	—	N 17 698 1
Spot light	12 V 35 W	211 941 253

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

Sealed Beam unit	6012 (US)	111 941 261 A
Front turn signal/parking light, rear turn signal and stop/tail light	SL 12 V 21/5 W	N 17 738 2

*) Optional extra for other models

We advise you to always carry a set of spare bulbs with you. These sets can be obtained at every VW workshop.

Replacing bulbs

1 - Headlight or parking light

Remove screw in the middle of the headlight rim. Take headlight unit out.

Pull 3-pin connector off bulb base but do not disconnect parking light and ground cables.

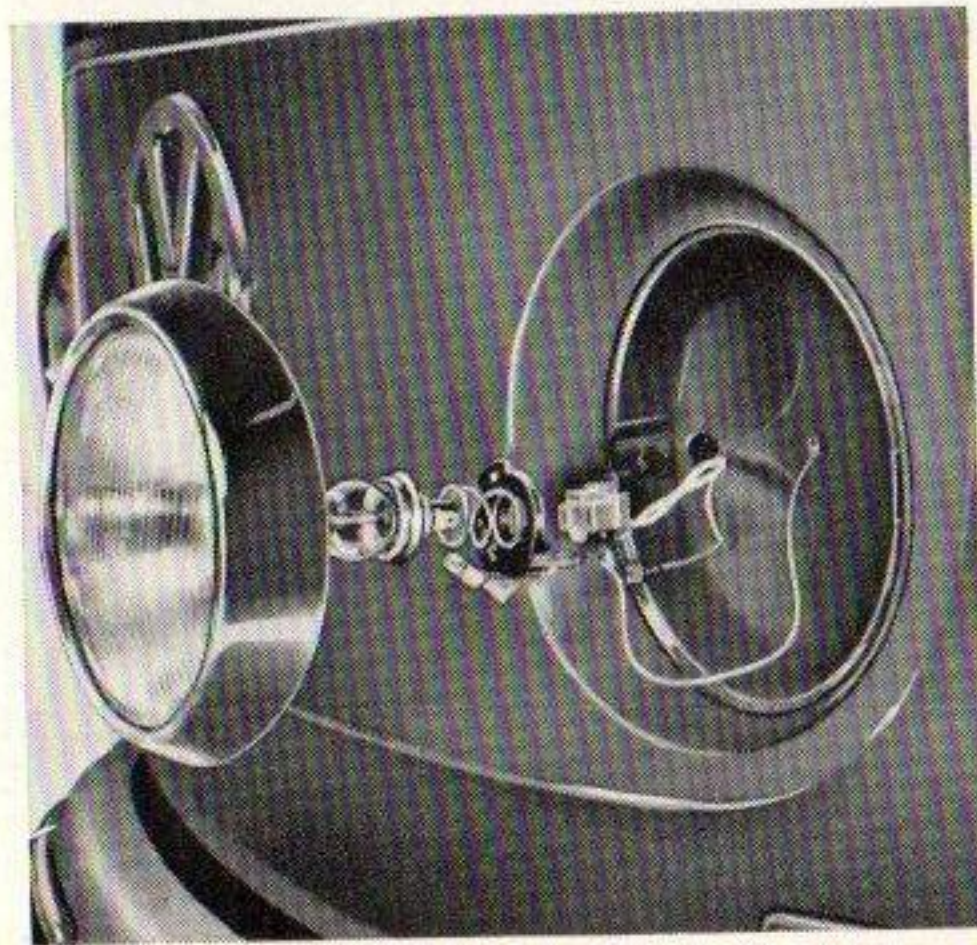
Press ring against reflector, turn it to left, pull bulb out of reflector and fit new bulb.

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

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

Install 3-pin connector and fit headlight.

Check the headlight setting.



2 - Sealed Beam unit

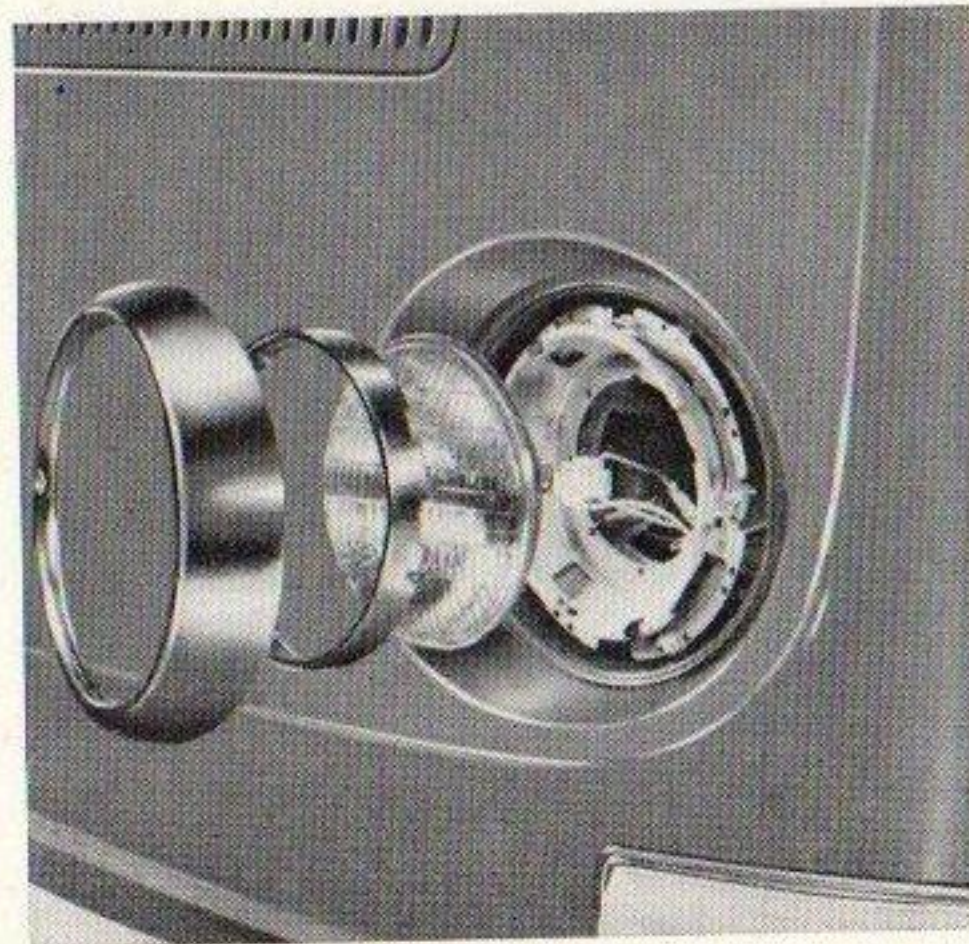
Remove screw in the middle of the trim ring and take the ring off.

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

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

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

Check headlight settings.



Front turn signal bulb

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

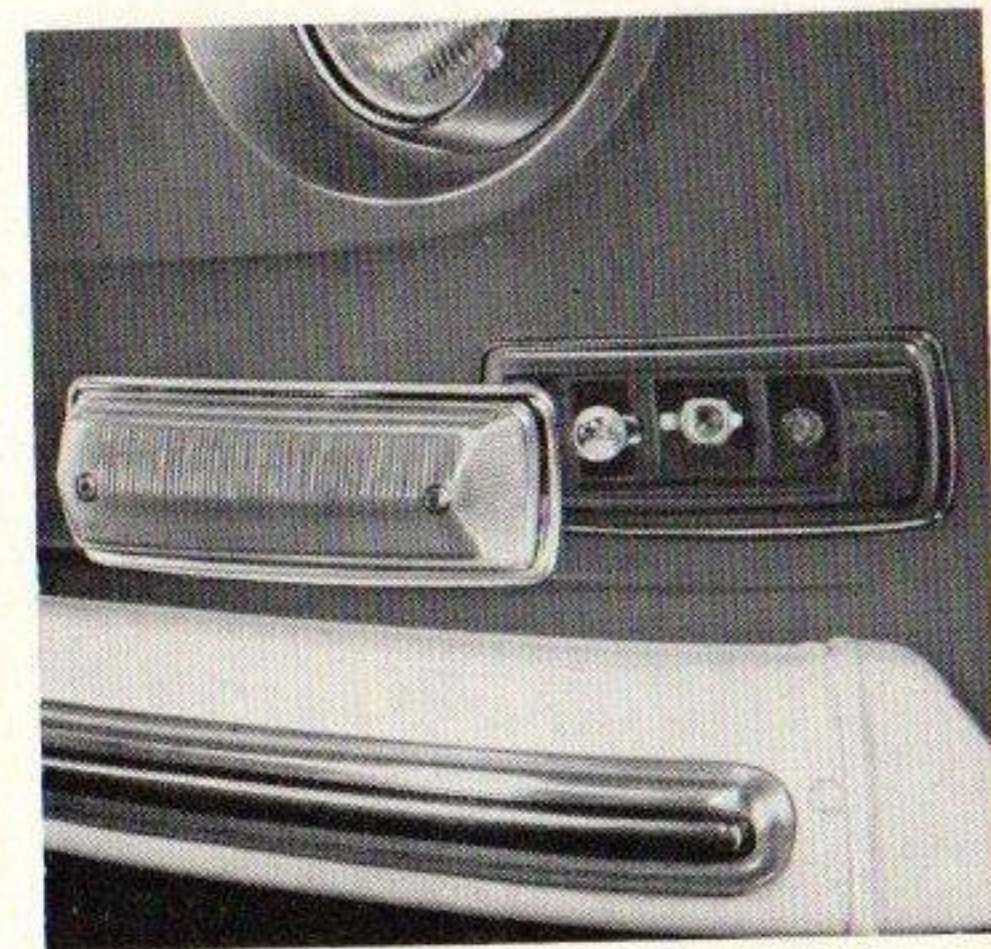
Remove two screws.

Take lens off.

Press bulb in lightly, turn and take out. Insert new bulb.

When installing lens, ensure that gasket is located properly.

Do not overtighten the securing screws.



Rear turn signal, stop/tail light or back-up light*) bulbs

(with Sealed Beam equipment: turn signal/stop/tail light bulb)

Remove three screws and take lens off.

Bulb positions:

Top — turn signal

Center — stop/tail

Bottom — back-up light

Press bulb in lightly, turn and take out.

Insert new bulb.

When inserting the double filament bulb, the retaining pin nearest to the bulb glass must be downwards.

Tighten lens securing screws evenly but do not overtighten.

License plate light bulb

Remove two screws.

Take lens and bulb holder off.

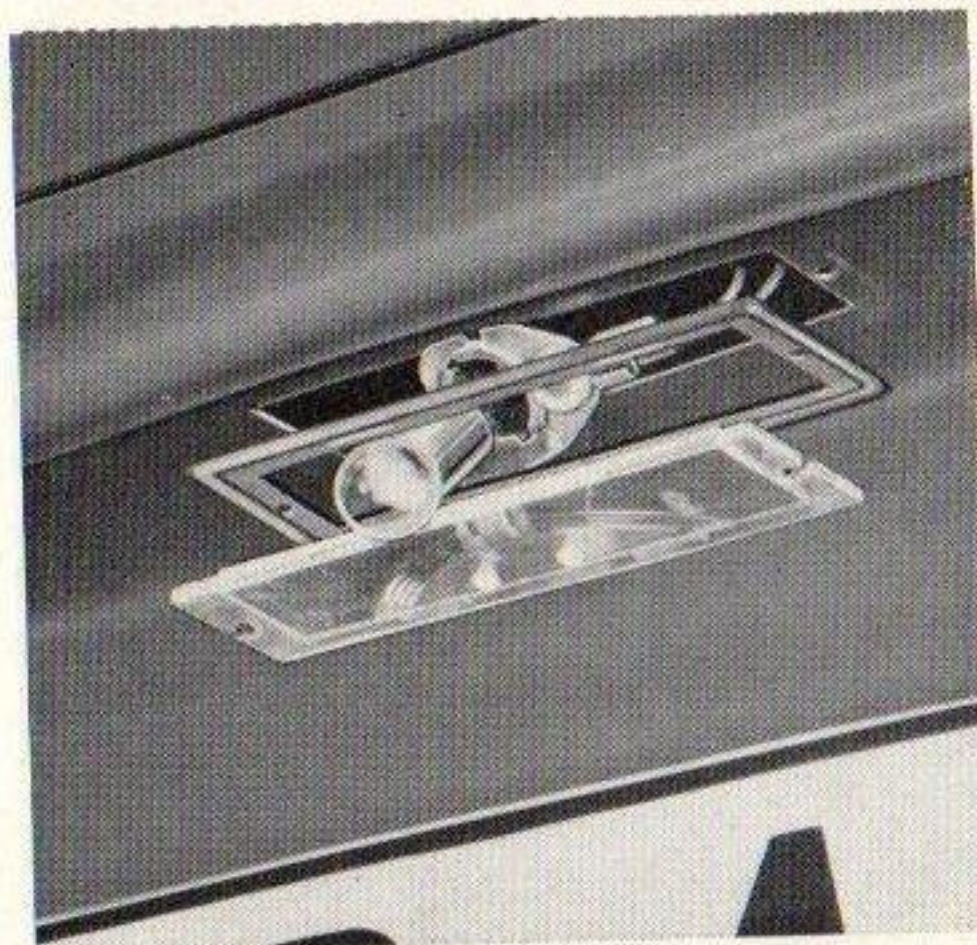
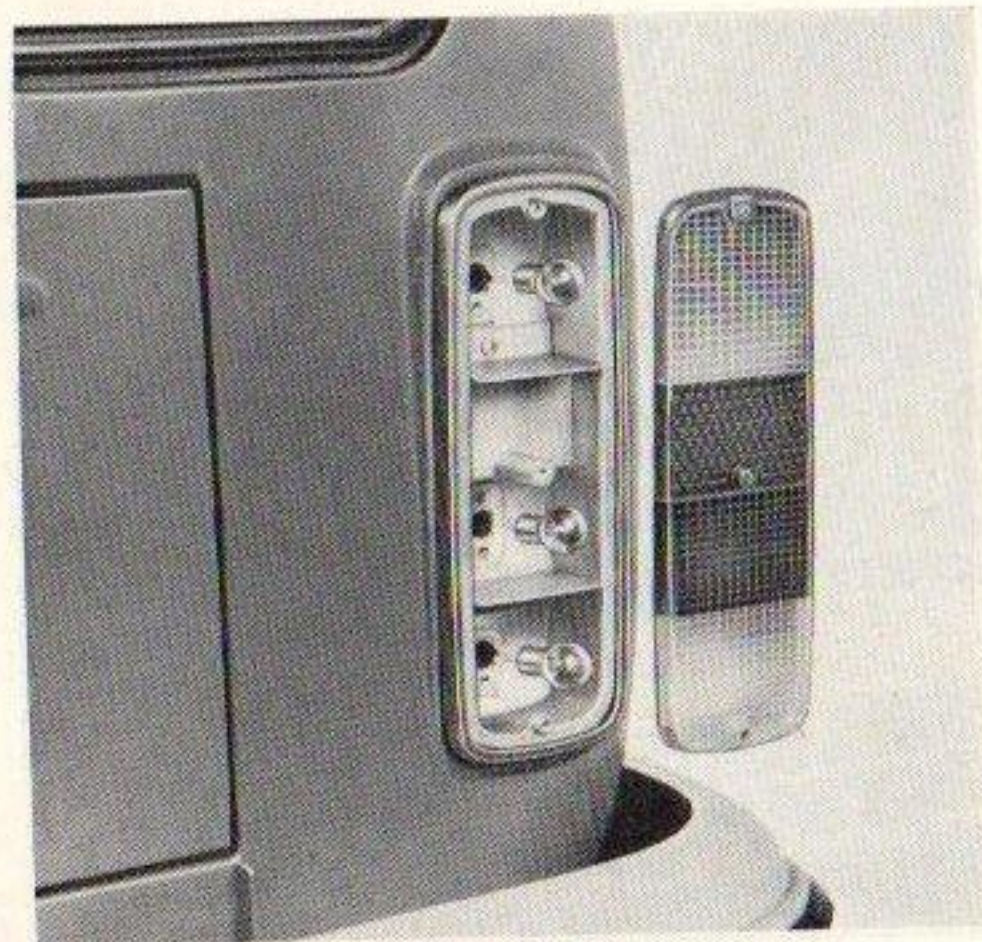
Press bulb lightly into holder, turn and take out.

Insert new bulb.

When installing, ensure that gasket is located properly.

Do not overtighten the screws.

*) Optional extra (Standard on Ambulance)





**They go to "school" with VW.
So that you feel as safe with
your VW all over the world
as you do at home.**

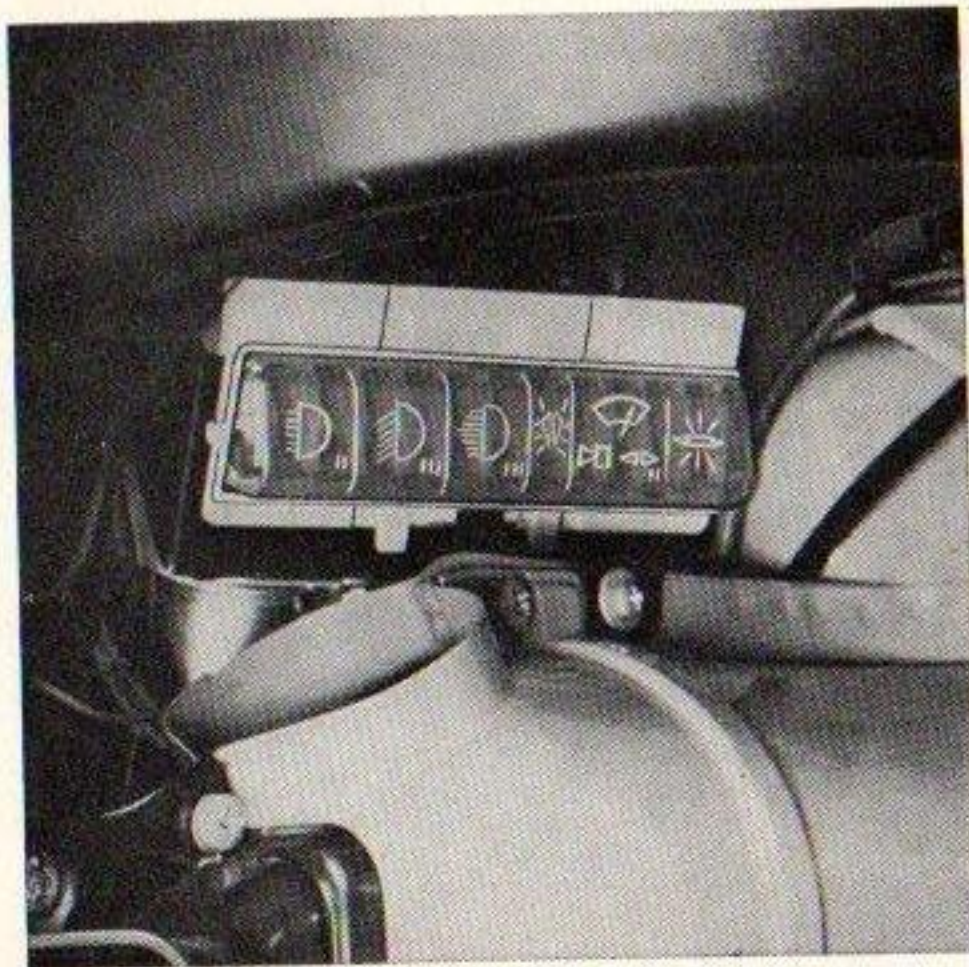
Every year 50,000 specialists are trained in VW service schools. Mechanics, foremen, service advisers from every corner of the world. In small groups of 8—10 they get to know the most modern procedures. Their knowledge is extended and kept right up to date by continuous training at their place of work. Result of this training: precision in servicing — and less time spent on the work.

For it is not sufficient for a VW workshop simply to produce quality. It does so at reasonable prices.

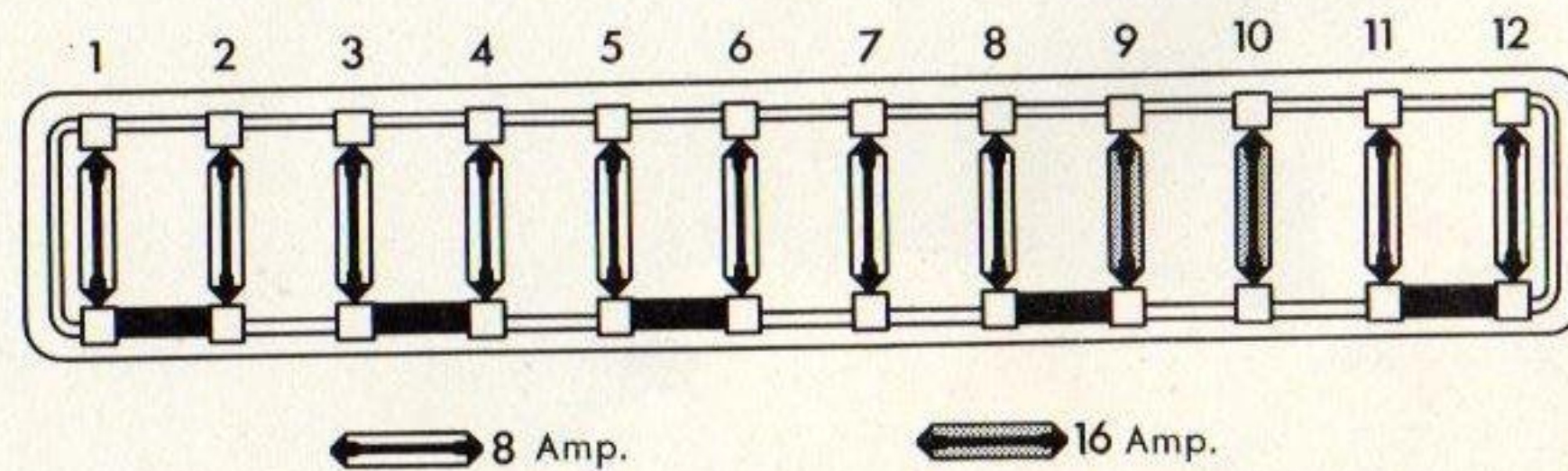
Replacing fuses

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.

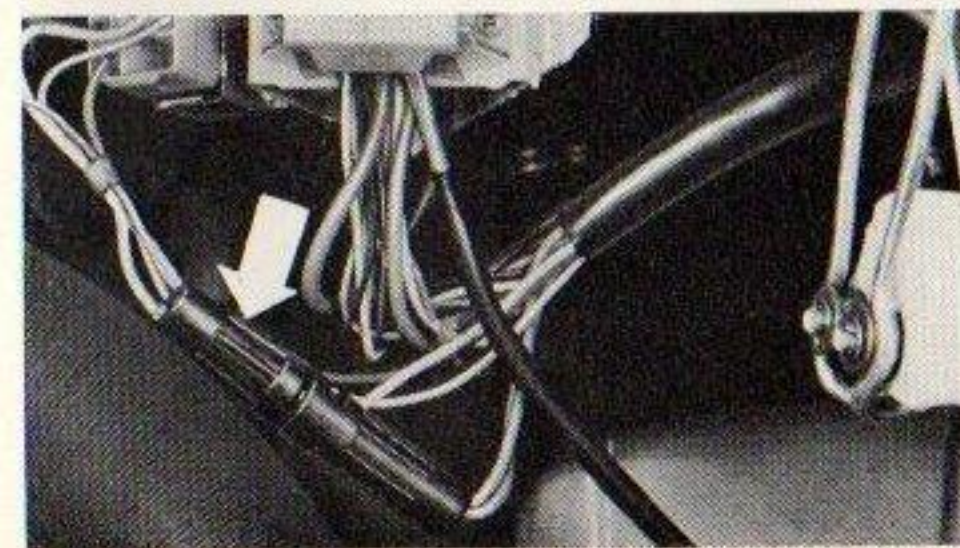
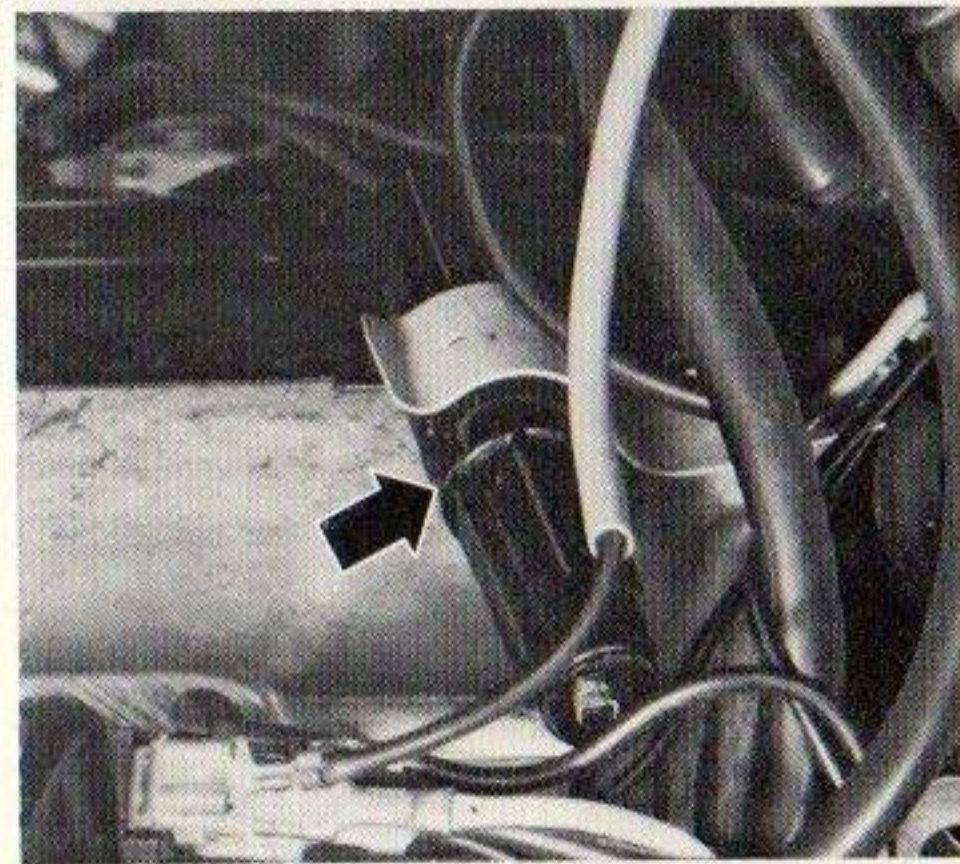
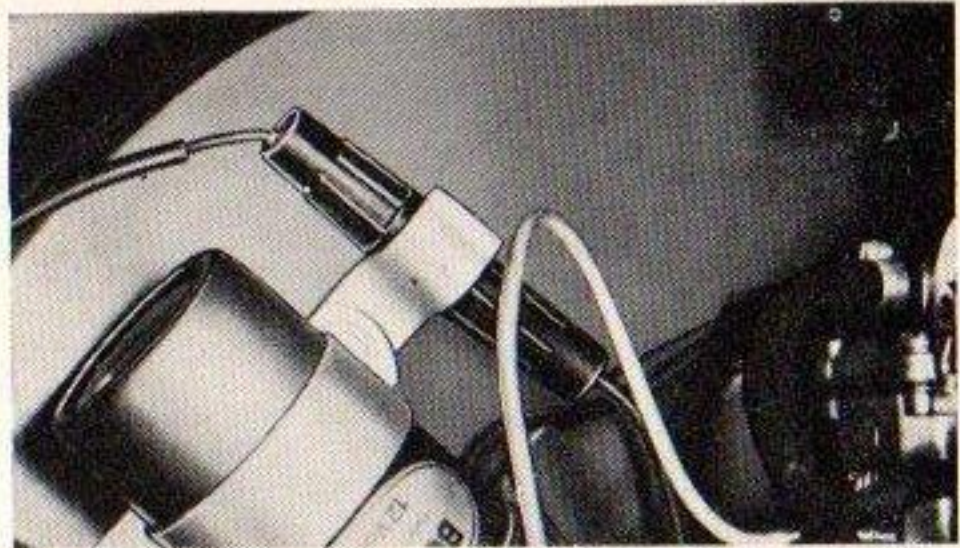
The fuse box which has a transparent cover is located under the instrument panel on the left.



- | | |
|---|--|
| 1 Tail light left | 8 Front interior light, hazard warning light system |
| 2 Tail light right, Parking lights | 9 Rear interior light |
| 3 Low beam right | 10 Windshield wiper |
| 4 Low beam left | 11 Turn signals, fuel gauge, |
| 5 High beam right | 12 Horn, brake lights, dual circuit brake warning light heated rear window*) |
| 6 High beam left, high beam warning light | |
| 7 Fresh air fan*) | |



*) Optional extra



Additional fuses

Electrical accessories	Fuse	Location of fuse holder
Back-up lights*) on 50 bhp engine model (Standard)	8 Amps	Engine compartment above coil
Back-up lights*) on 66 bhp engine model**))	8 Amps	Engine compartment on left near coil
Warm air blower on 66 bhp engine model	16 Amps	Engine compartment near test socket

*) Optional extra (Standard for Ambulance)
 **) Optional ettra

Care of battery

The battery should be checked regularly because the ability of the engine to start readily depends to a large extent on the condition of the battery. The battery is located in the engine compartment. For maintenance purposes the battery should be taken out. The air cleaner must be taken off (50 hp-engine only) first in accordance with the instructions on page 66. A 13 mm open-end wrench is used to loosen the retaining nut and the battery terminals.

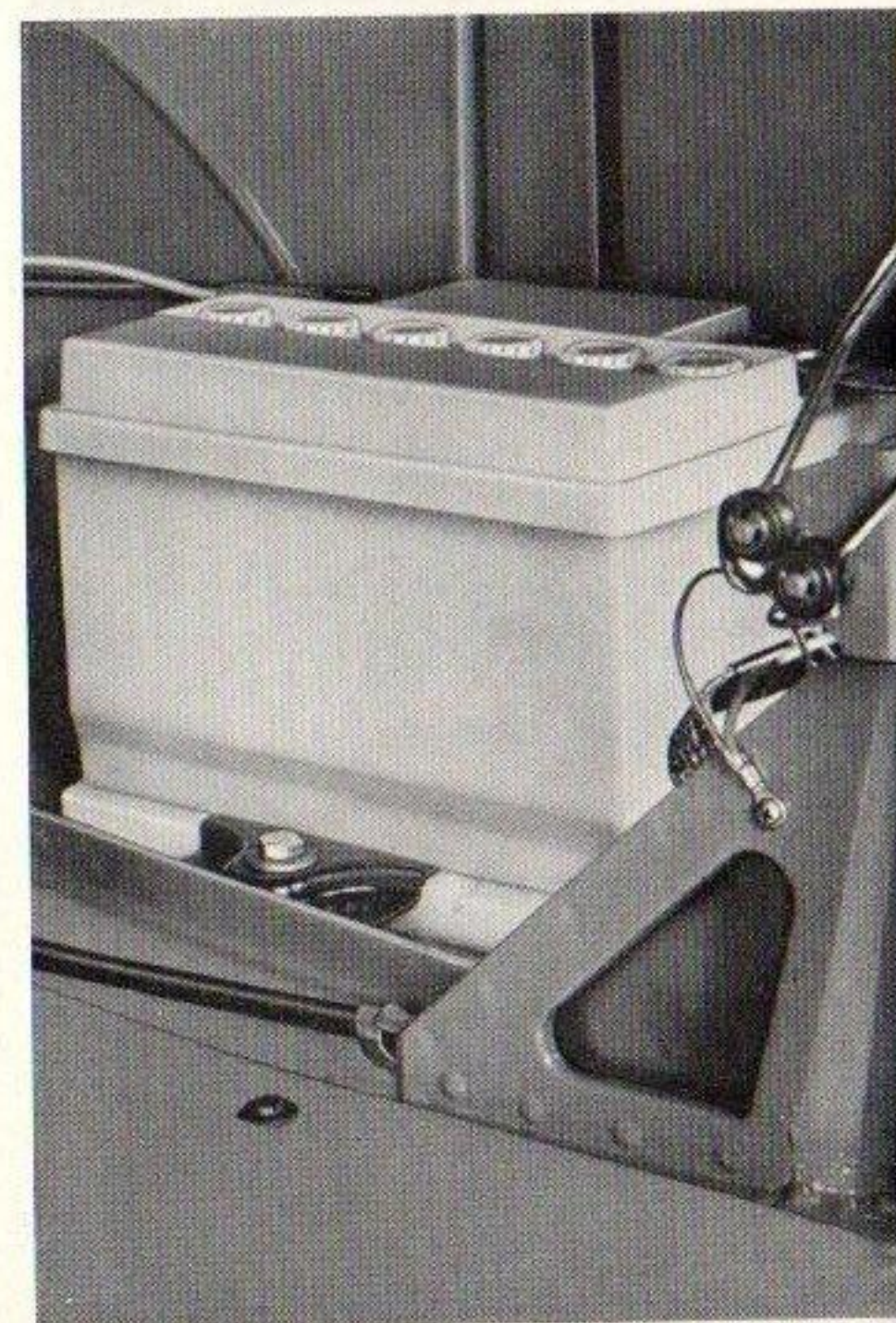
Caution To prevent short circuits always detach the ground strap (—) first but connect the positive cable (+) first.

A short circuit can cause the battery to heat up very quickly and it may burst. Furthermore, the sparks can ignite the gas generated during the charging process.

To avoid damage to the electrical system never drive the vehicle with the battery disconnected. On the other hand, both terminals must be disconnected before quickcharging the battery.

To check the acid level, remove the plugs. The acid should be kept exactly on the mark. When the level is below the mark top up with **distilled** water. The acid level drops mainly when the vehicle is driven frequently without lights, due to the dissociation of the water used to dilute the acid, and to a lesser extent, to evaporation. In the summer the acid level should be checked about every 8 days. In the winter it need not be checked so often. The terminals and connections must be kept clean and greased with terminal grease. Ensure that the ground connection makes metal to metal contact with the body.

If you lay the vehicle up for a prolonged period have the battery checked and charged in a VW workshop every four weeks as otherwise it will discharge itself in time and this will damage it.



Towing

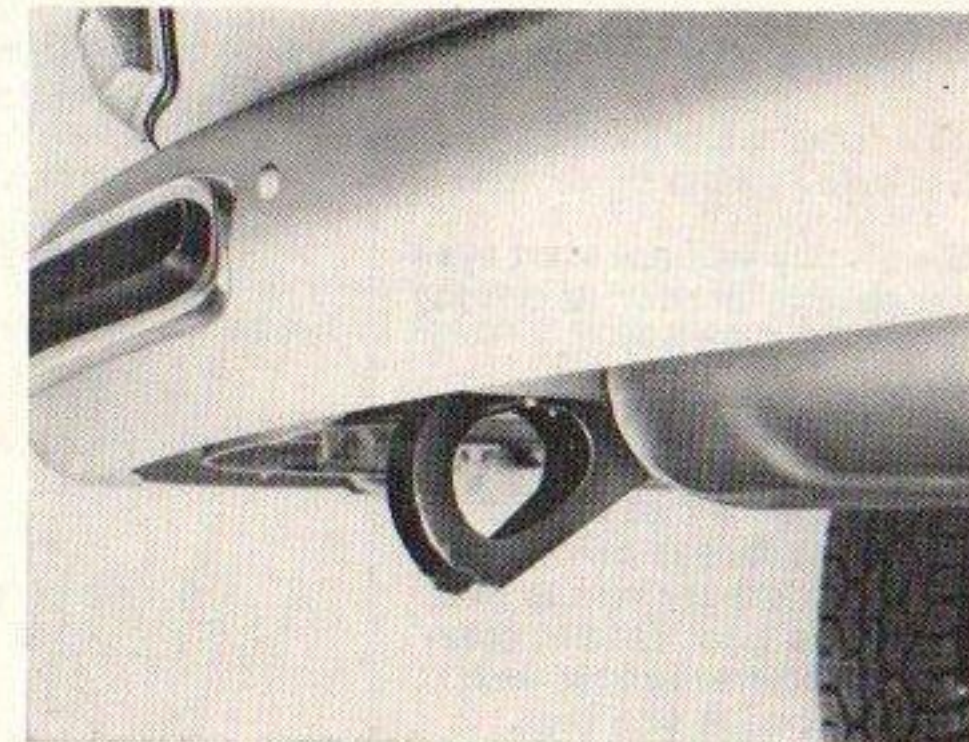
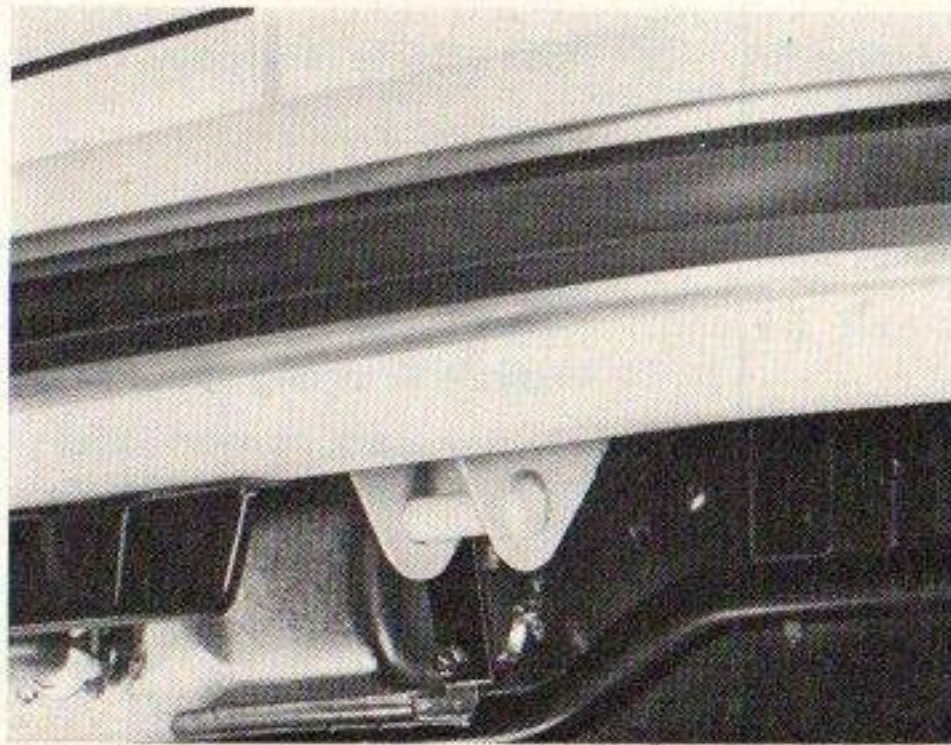
A towing eye is fitted at rear and front so that you can attach a towrope to your VW Transporter easily.

One stipulation is that the towing effort must not be excessive and that towing is done without jerking. When towing a vehicle on anything except hard roads there is always a risk of the frame being overloaded and damaged.

The driver of the towing vehicle must use his clutch very carefully when moving off and changing gear. The driver of the vehicle being towed must keep the towrope taut.

As the brake servo *) does not work when the engine is not running, some of the force normally available for braking is missing so the pedal must be depressed harder than when servo is working.

The towrope should be slightly elastic in order to reduce the snatching between towing and towed vehicle. Plastic towropes are good in this respect.



*) Optional extra

Starting trouble

Volkswagen are reliable. You can keep your car reliable if you have it checked and maintained with the Volkswagen Diagnosis and Maintenance System.

Apart from this, many VW drivers will be pleased to see that this instruction manual contains a trouble diagnosis chart so that if the engine does stop or fails to start some day, it can be checked and often got running again.

The operations are described as done by a skilled mechanic. The source of trouble is located by checking systematically: There should be fuel in the carburetor, there should be a spark at the plugs — the trouble is soon found. It is really quite easy once you know how it is done.

Condition	Possible cause	What to do
A - Starter will not turn engine or turns it too slowly	1 - Battery run down	1 - Have battery charged or replaced. Try to start by pushing vehicle (ignition on, clutch out, 2nd gear engaged. When vehicle is rolling, let clutch in quickly).
	2 - Battery flat, battery cable oxidized or loose	2 - Have battery charged or replace. Try to start by towing vehicle (ignition on, clutch out, 2nd gear engaged. Let clutch in slowly at about 20 mph. Clean battery terminals or tighten them. Important To avoid short circuits, take ground cable (—) off first and connect positive cable (+) first.
	3 - Starter switch, cables or starter defective	3 - Push vehicle (see point 1) to start engine and see VW Dealer.
B - Engine will not start even though starter is turning it over quickly Read instructions in section on "Starting engine" to ensure that correct procedure is being used. Check that there is fuel in the tank. Do not operate starter longer than 5 seconds at a time.	1 - Defect in ignition system	1 - Check ignition. Wipe wet cables dry. Pull connector off a plug, and screw connector off cable. Grip cable with piece of dry cloth and hold end about 8 mm from a metal part. Have someone turn engine over with starter (gearshift lever in neutral). A strong spark should jump from end of cable to metal part. a) If a spark appears, take plugs out. Dry plugs off, clean electrodes with a chip of wood and check gaps. Install new plugs if necessary. If engine still does not start, look for defect in fuel system. b) If there is no spark when checking as at point 1, pull the black cable (terminal 15) off the tab on the coil, switch ignition on and touch cable end briefly to a bare metal part. There should be a spark. If there is no spark, there is a break in the circuit. See VW Dealer.
	a) Plugs wet or dirty	
	b) No current at coil	

Condition	Possible cause	What to do
<p>Then switch ignition off and wait about 10 seconds before trying again. If engine does not start after 4 or 5 attempts, locate trouble with aid of table.</p>	<p>c) Coil defective, breaker contacts in distributor faulty</p>	<p>c) If there is a spark, switch ignition off. Take off distributor cap and rotor. Turn engine by fan belt until points are fully open. The breaker gap should be 0.4 mm (.016 in). Turn engine on until points are closed and push a piece of thick paper to and fro between the points. Switch ignition on again and open and close points several times with a non-metallic object. A strong spark should appear between the points. If there is no spark, see your VW Dealer.</p>
	<p>d) Distributor cap and rotor damp or damaged</p>	<p>d) If engine does not start even though there is a spark at the breaker points, wipe cap and rotor with a clean cloth and check for damage, cracks and burning. The carbon brush in the cap must spring up again when pressed in and must not be broken.</p>
	<p>2 - Defect in fuel system</p>	<p>2 - Have fuel system checked.</p>
	<p>a) Fuel pump damaged, float needle valve sticking</p> <p>b) Automatic choke not working</p> <p>c) Engine flooded due to pumping accelerator pedal when starting</p>	<p>a) See VW Dealer.</p> <p>b) If engine does not start, even though there is fuel in carburetor, the automatic choke may not be working. To check choke, take air cleaner off and see if choke valve is closed when engine is cold and open when warm. Emergency solution: Start engine from cold with choke open by pumping with accelerator pedal. When engine is warm hold choke valve open with a piece of wire.</p> <p>c) Try starting with accelerator pedal fully depressed. If necessary, remove spark plugs and dry them off. Turn engine over for about 30 seconds with plugs out then install plugs again.</p>

Fuel and lubricants

Fuel

The Volkswagen will run satisfactorily on all normal commercial fuels which fulfil the 91 Octane requirement of the engine. If regular fuels with adequate anti-knock qualities are not available, premium fuels should be used or mixed with the regular fuel.

Engine oil

Use only good brands of gasoline engine HD oil for the engine of your Volkswagen.

HD (Heavy Duty) is the internationally used designation for engine oils with certain characteristics. In some countries, however, the suitability of engine oils for certain operating conditions is classified according to the API system (American Petroleum Institute). With this system, HD oils suitable for the Volkswagen engines are designated "MS" or "SD".

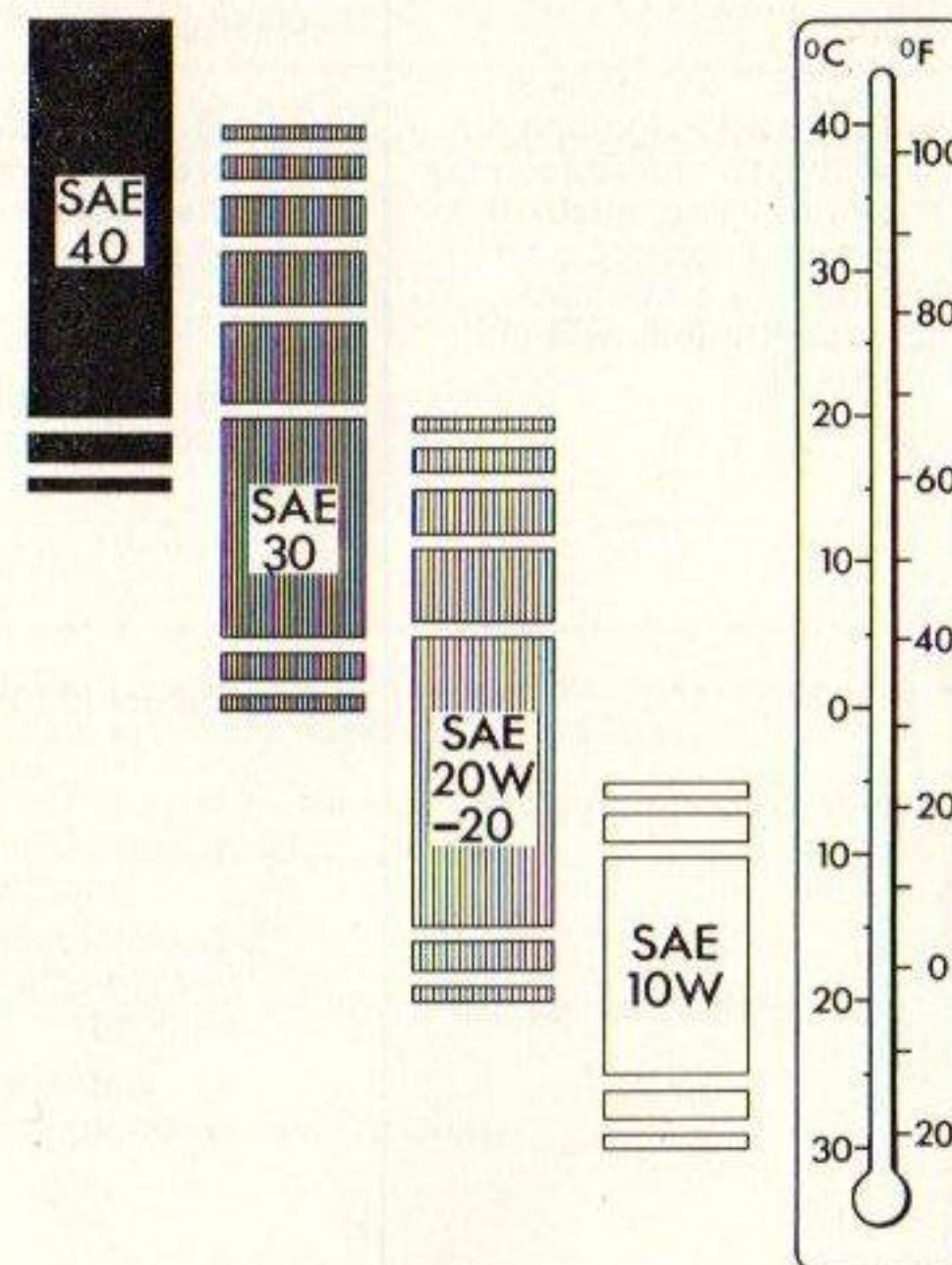
The viscosity of the oil is usually shown by the SAE grades (Society of Automotive Engineers). The viscosity must be matched to the temperature involved and is thus dependent on the climate and on seasonal outside temperatures.

The following table is valid for Volkswagen engines only. It can be seen that the Volkswagen engine normally requires only two different viscosity grades which are selected as follows:

Tropical areas	in hot season		SAE 40
	in cool season		SAE 30
Areas with a temperate climate	in summer		SAE 20 W—20
	in winter	where temperature is not normally below -15°C (5°F)	SAE 20 W—20
		where temperature is normally down to -25°C (-13°F)	SAE 10 W*)

When the temperature is continually below -25°C (arctic areas) it is advisable to use SAE 5 W *)

*) Do not drive at high speeds for long periods when using SAE 10 W oil if the outside temperature is above -10°C (14°F) or if using SAE 5 W when the temperature is above -20°C (-4°F).



As the operating ranges of neighbouring SAE grades overlap, as shown by shaded parts of sketch, **brief** variations in temperature can be disregarded. For the same reason it is also quite in order to mix oils of different viscosities when oil has to be added and the viscosity of the oil in the engine is no longer correct for the actual temperature.

Transmission oil and ATF (Automatic Transmission Fluid)

Transmission and final drive are combined in one housing and both lubricated with the same hypoid oil (to MIL-L 2105 B specifications — additive basis: sulphur-phosphor).

SAE 90 All the year in most places.

SAE 80 In areas with low average temperatures

ATF In areas with arctic temperatures (below -25°C / -13°F)

ATF is actually a special lubricant for automatic transmissions but it can be used in the manual transmission under the weather conditions mentioned above for ATF.

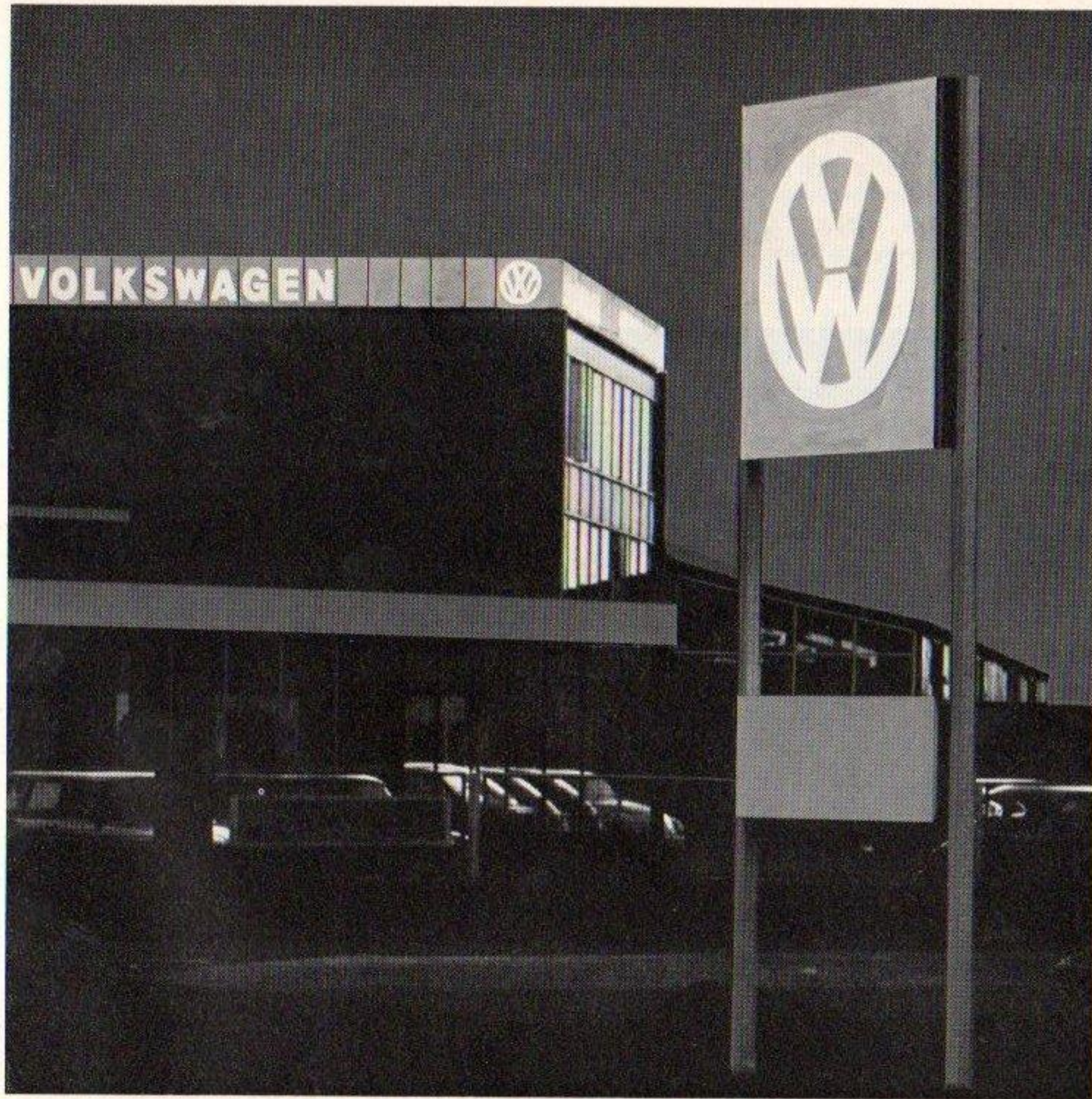
All AT fluids which carry the Dexron test mark, for example, Dexron[®] No. B 10 100, can be used for VW vehicles. Suitable products are supplied by all well-known mineral oil firms.

Lubricant additives

No additives of any kind should be mixed with the fuel or the lubricating oils.

Grease

1. **Multi-purpose grease with a lithium base** should be used for the front axle.
2. **Terminal grease** should be used for the battery terminals and posts.



So that you know where to take your car for servicing: Every VW workshop displays the VW sign.

Many other workshops would like to have you as a customer but they are not good enough for your VW. Workshops not authorized by VW cannot offer you the sort of service which you get at a VW shop.

The Volkswagen Diagnosis and Maintenance system, for example.

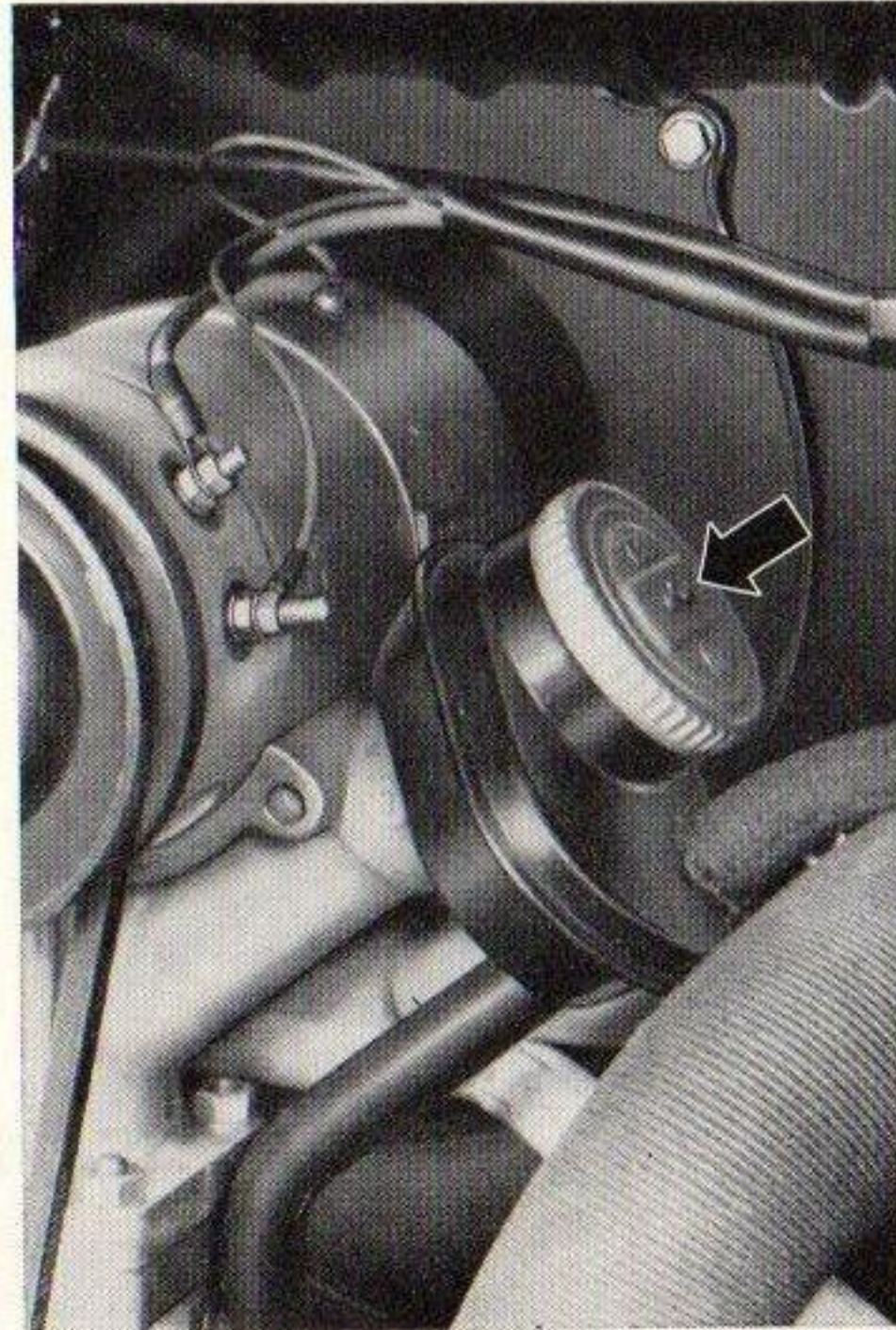
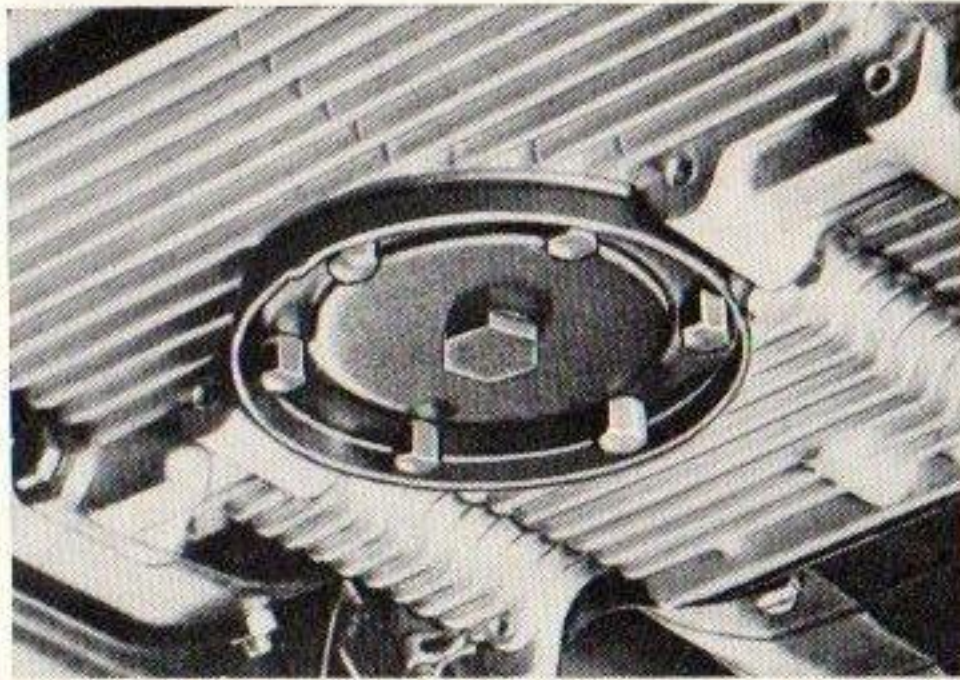
Trained mechanics with special tools. Rationalized procedures developed by the VW factory. In short — the economic way of keeping your VW in tiptop, roadworthy condition. Year after year.

Lubrication

Engine

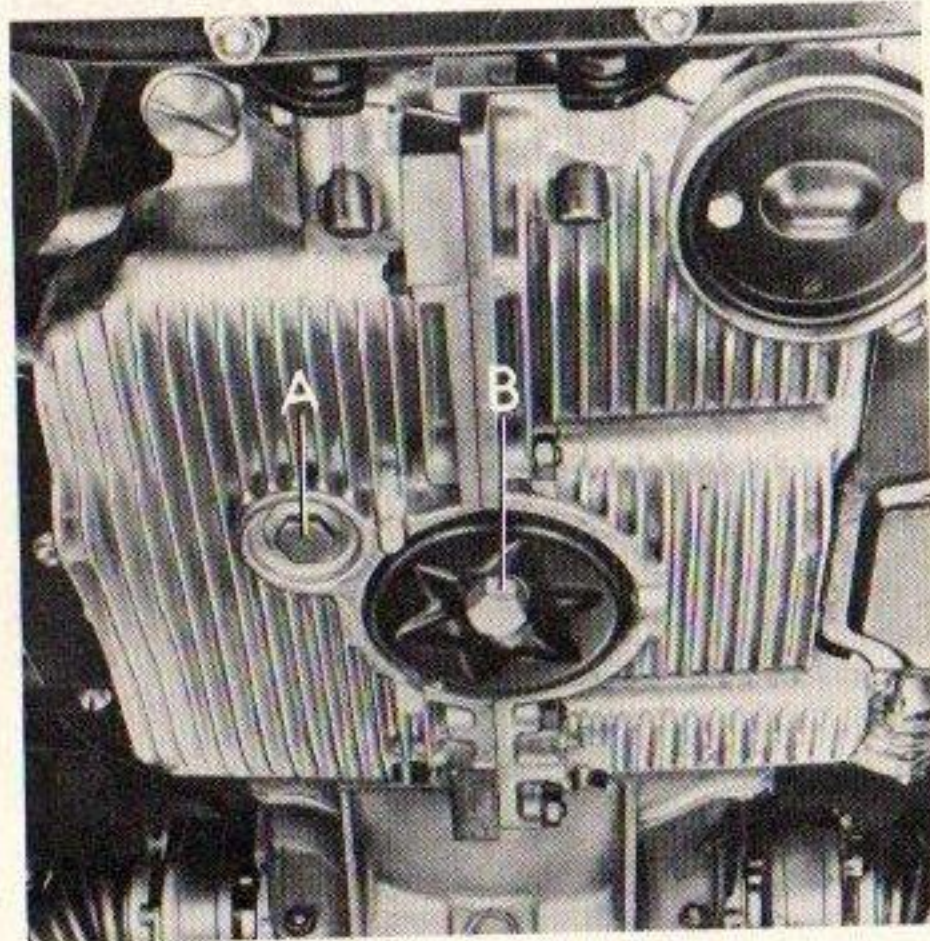
Regular oil changes are necessary even if the very best brand of HD oil is used because dirty oil in the engine means increased wear and reduces service life.

The oil is drained, when warm, by removing the plug in the oil strainer cover plate. Flushing is not necessary but the strainer must be removed and cleaned at every oil change. The



gaskets and the copper washers under the cap nuts must always be renewed. The engine is then filled with 2.5 liters of HD oil (5.3 US pints/4.4 Imp. pints).

The old oil is drained, when warm, by removing the drain plug -A-. The engine does not need to be flushed but the strainer should be taken out by removing the center nut -B- and cleaned at every oil change. New gaskets and washers should be fitted every time.

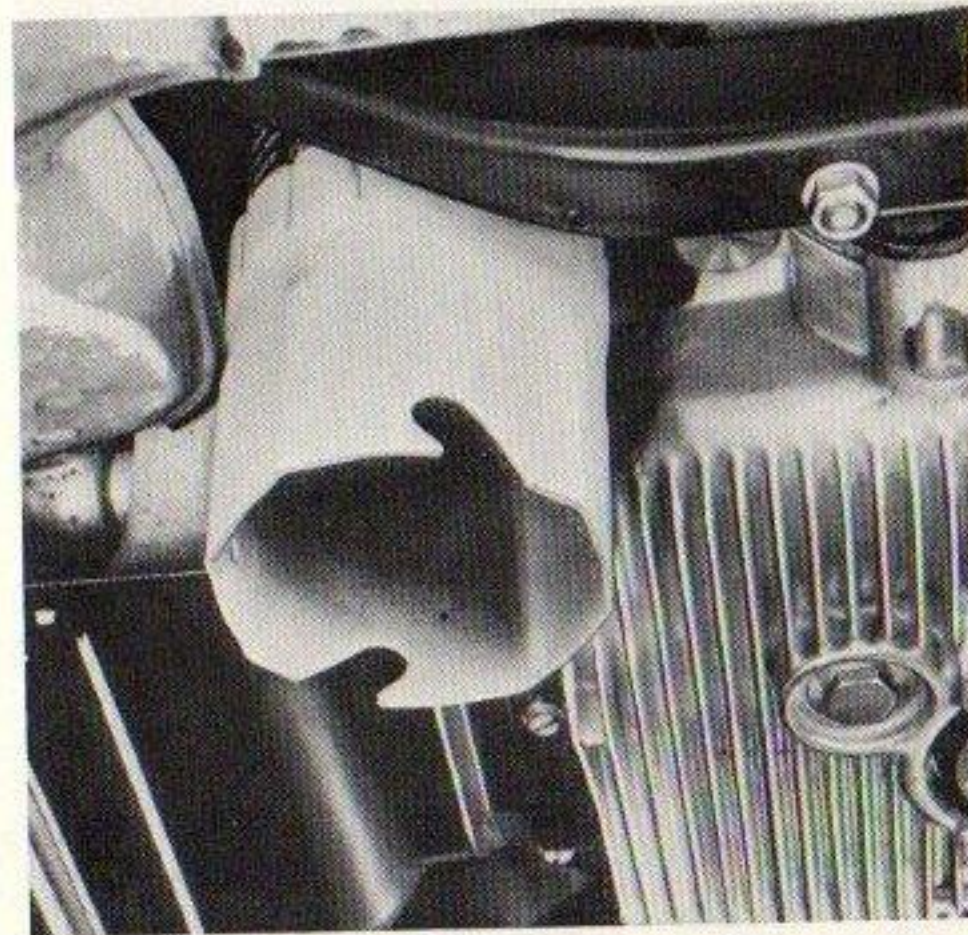


The oil change quantities are:
with filter change 3.5 liters (6.125 pints)
without filter change 3.0 liters (5.25 pints)

*) Optional extra

The full flow oil filter is changed at every second oil change every 10 000 km (6000 miles).

The center nut for the oil strainer should be tightened with a torque wrench. The correct torque is 1.0—1.3 mkg (7—9 lb. ft.).



A special wrench is required to screw the oil filter off and on.

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

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

In areas with arctic climates where the average temperature is about -25°C the oil should be changed every 1250 km (750 miles).

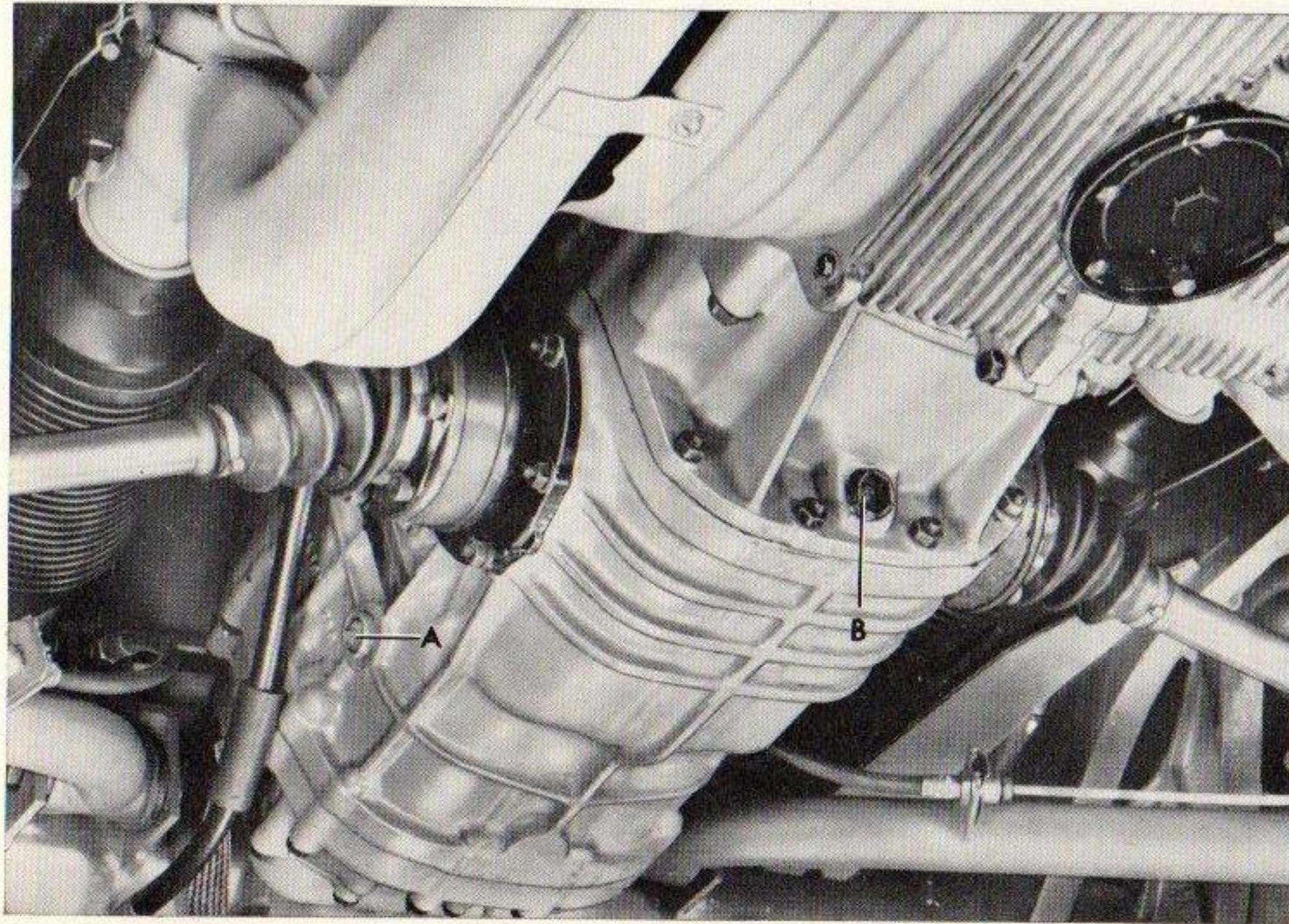
Transmission

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

The transmission oil is only changed at 1000 km (600 miles) by your VW workshop. Should it later on become necessary to change the oil

because of a considerable and prolonged change in temperature (see page 57), proceed as follows.

At oil changes the magnetic drain plug (B) should be removed and the old oil drained off while it is still warm. Before the plug is put back



it must be cleaned thoroughly. Then put in 3.5 liters of hypoid oil to MIL-L 2105 B specifications — additive basis sulphur-phosphor.

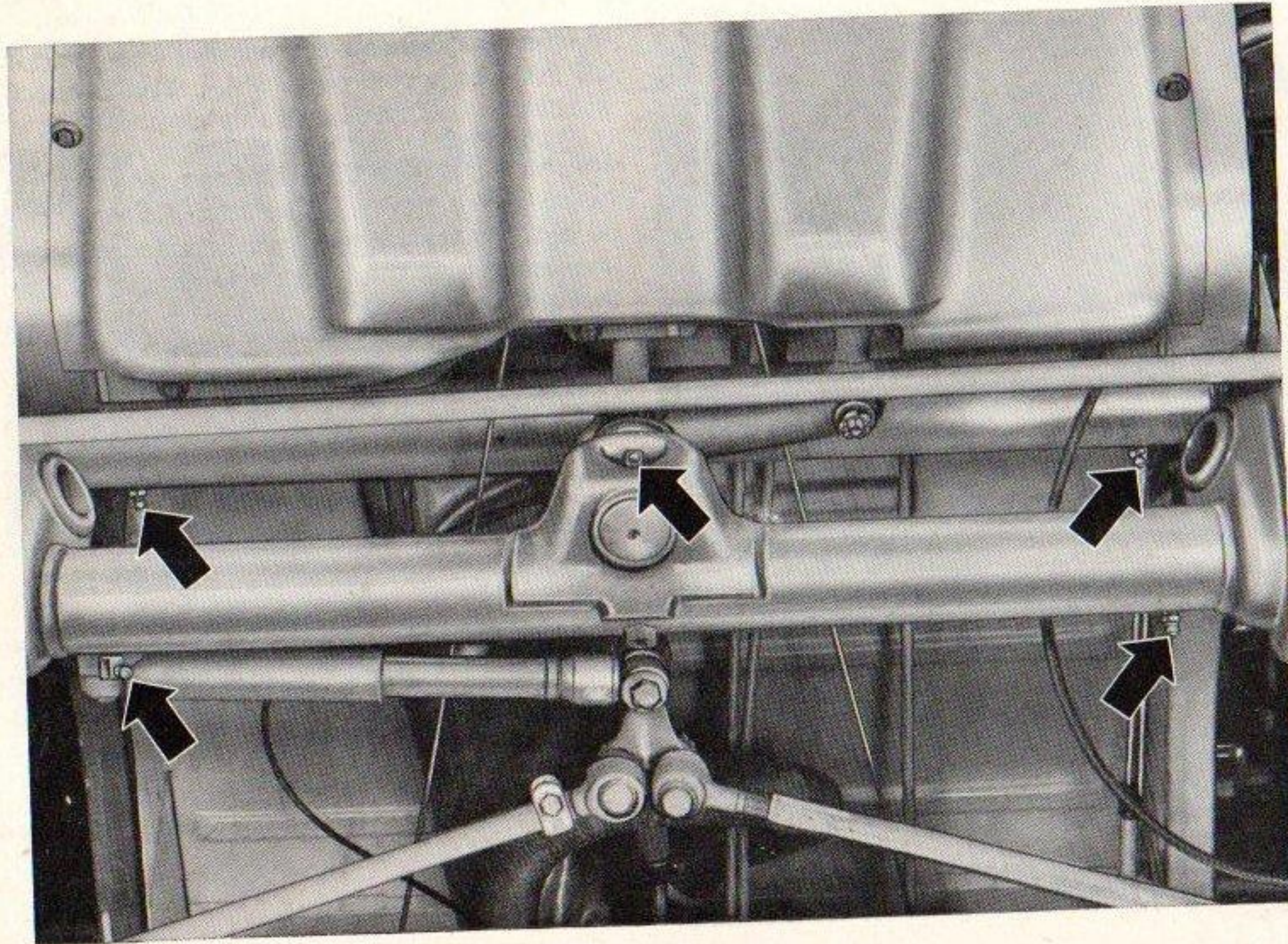
The oil sometimes runs into the transmission housing very slowly. If one attempts to put the oil in too quickly it may overflow and give the impression that the housing is already full although actually only about 1—1.5 liters have been put in. It is essential to the service life and silent running of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

Front axle

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

The four nipples on the axle tubes and the one on the swing lever shaft should be lubricated

with a lithium-based multi-purpose grease. The nipples and the nozzle of the grease gun must be cleaned carefully before greasing commences. Place gun on nipples and inject grease until fresh grease starts to come out of the bearings.



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

If the vehicle is driven less than 30 000 km (18 000 miles) in a year, have the front axle lubricated once a year.

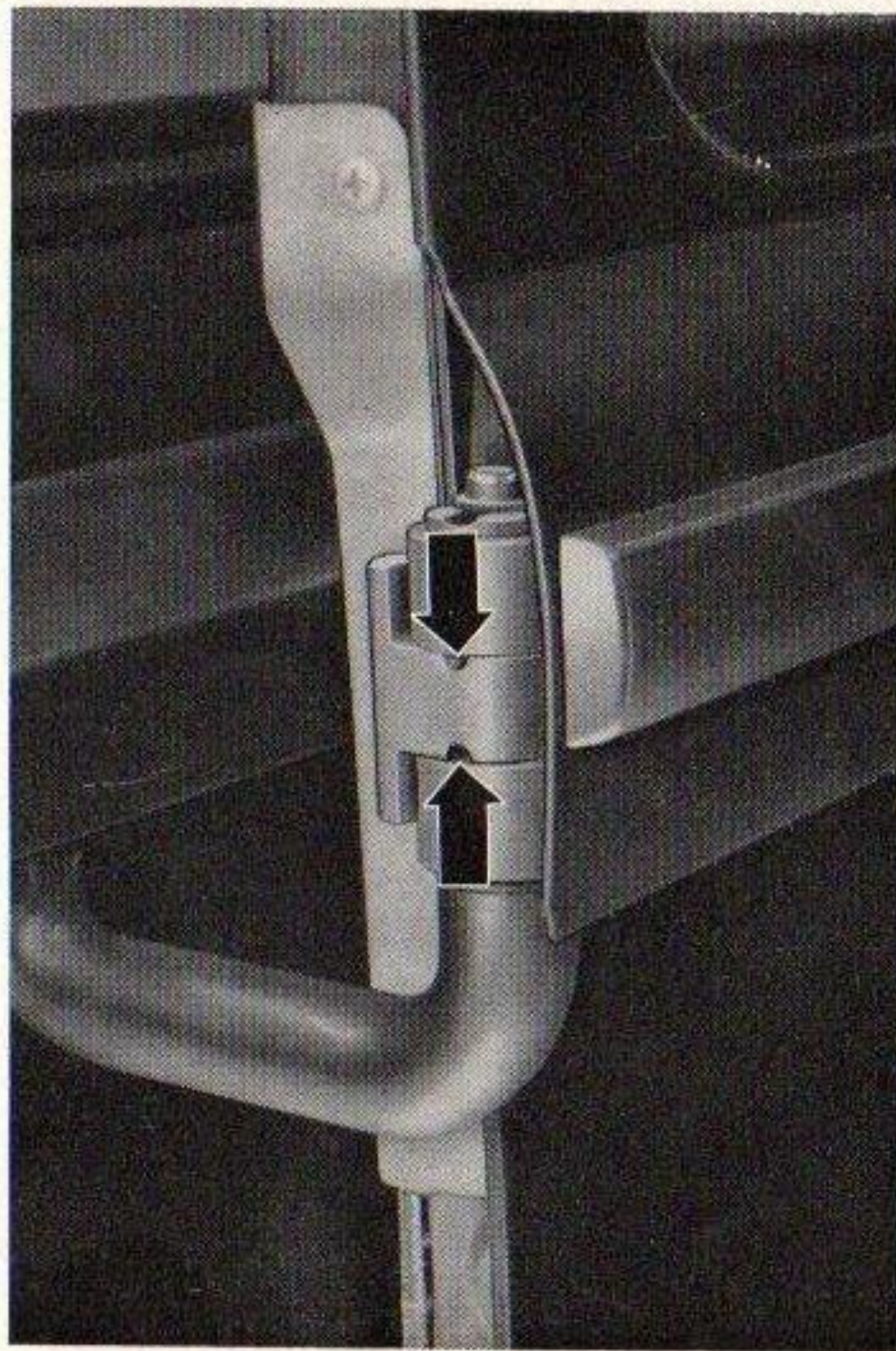
Hinges and locks

Above the hinge pins in the cab door hinges are small oil chambers which are sealed with plastic plugs. At least every 6 months the oil level should be checked after levering out the plugs with a small screwdriver. The chamber should then be filled with SAE 30 engine oil.



Any oil which overflows should be caught with a cloth, the plug pressed back in again and the hinge wiped carefully.

At the same intervals, the joint of the sliding door hinge — arrow — and the pivot points of the rear flap hinges should be lubricated with



a few drops of oil. Excess lubricant should be wiped off at all these points.

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

Air cleaner

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

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

Loosen clip — A — and take elbow off.

Pull hose — B — for load and temperature sensitive intake air preheating off.

Pull hose — C — for tank ventilation off.

Pull hose — D — for crankcase ventilation off.

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

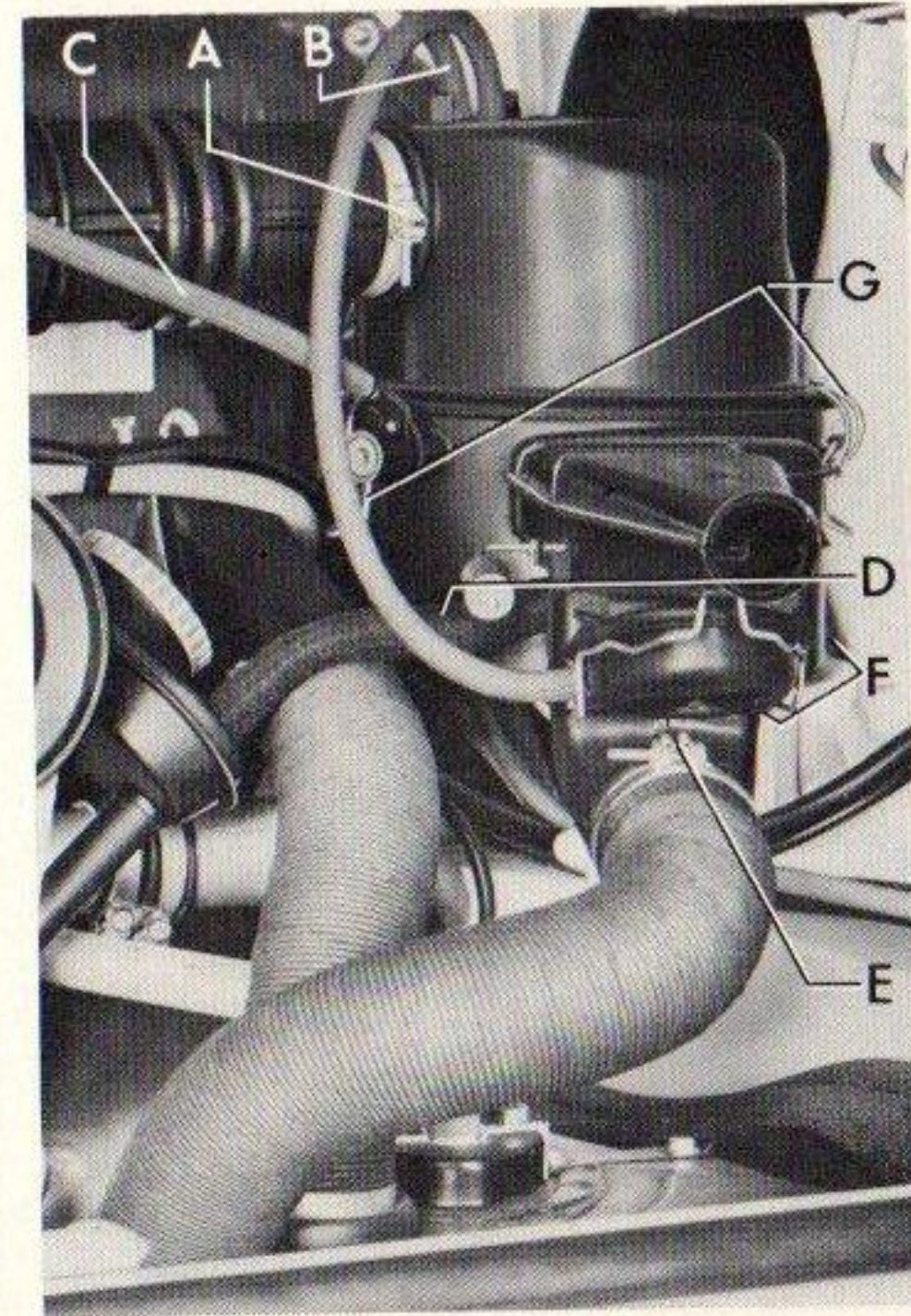
Release clips — F — securing cleaner to bracket and take cleaner off.

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

Clean bottom part carefully and fill to the mark with fresh engine oil (approx. 0.45 liter). Use SAE 30 all the year except in countries with arctic climates where SAE 10 W oil should be used.

The top part does not normally need cleaning. If the filter element has become so dirty due to delayed cleaning of the bottom part or oil shortage that the air inlet holes on the underside are partly blocked, the encrusted dirt should be scraped off with a piece of wood.

After assembling the cleaner, secure it to the bracket in the engine compartment with the two clips. Tighten intake elbow clip carefully.

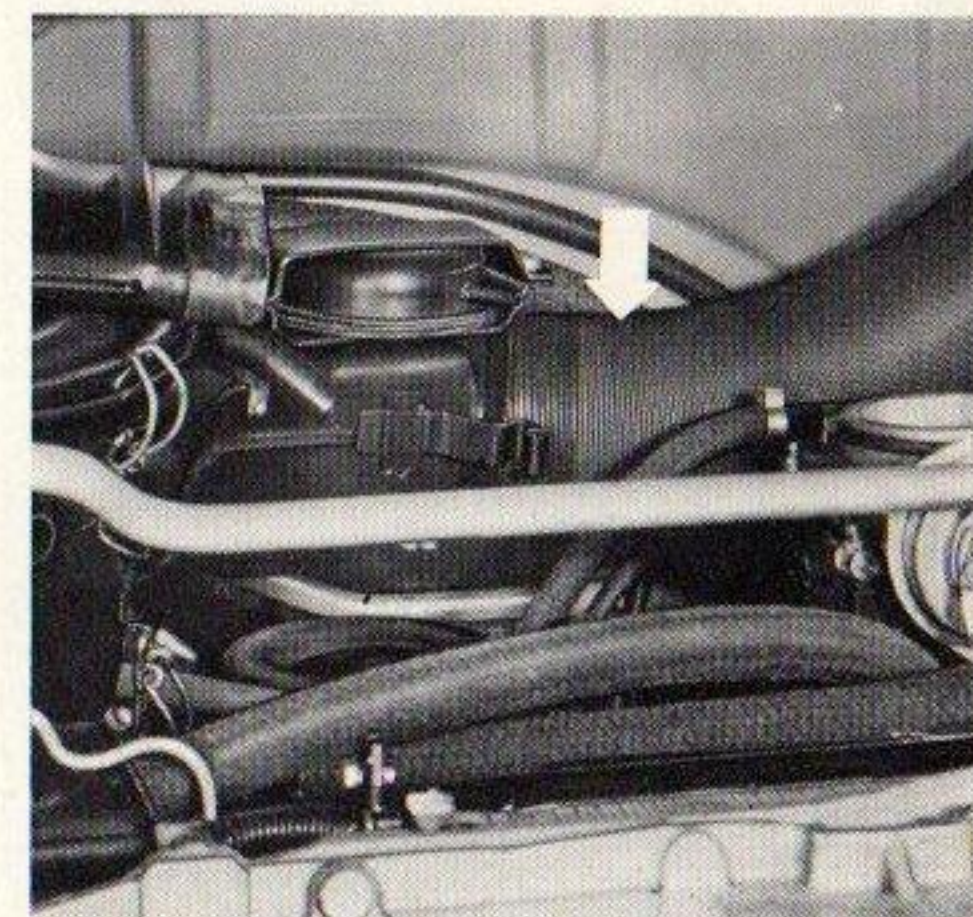
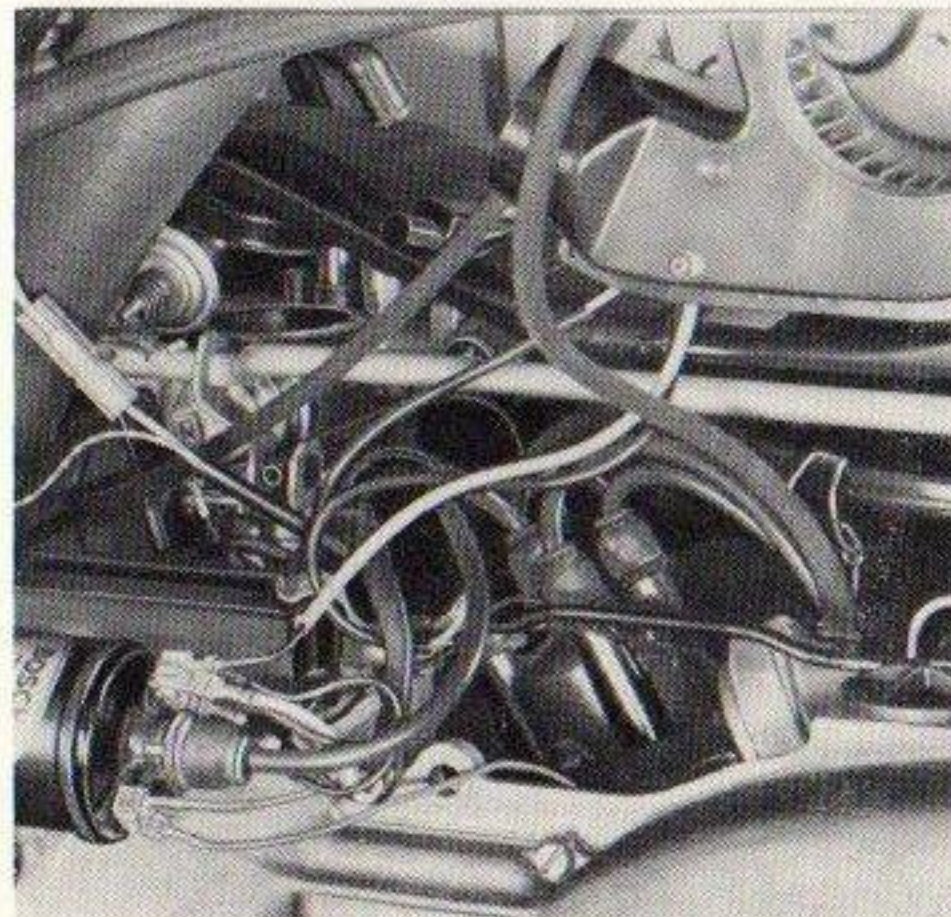


Air cleaner — 66 bhp engine *)

Loosen clips on warm hoses and pull hoses off blower. Pull crankcase ventilation hose off oil breather. Pull the two intake air preheating hoses off the right cleaner end piece.

Pull hose for central idling air line off the left cleaner end piece. Release the two clips holding cleaner on crankcase, pull both outer carburetor springs off cleaner end pieces and pull end pieces off. Detach fresh air hose from intake connection.

Lift cleaner out of engine compartment, keeping it horizontal. Loosen three clips and lift top part of cleaner off. The top part must not be put down with the filter element upwards.



*) Optional extra

Clean lower part carefully and fill to mark with fresh engine oil. Use SAE 30 oil all the year normally and SAE 10 in countries with arctic climates.

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.

The embossed marks in the upper and lower parts of cleaner must be aligned on assembly.

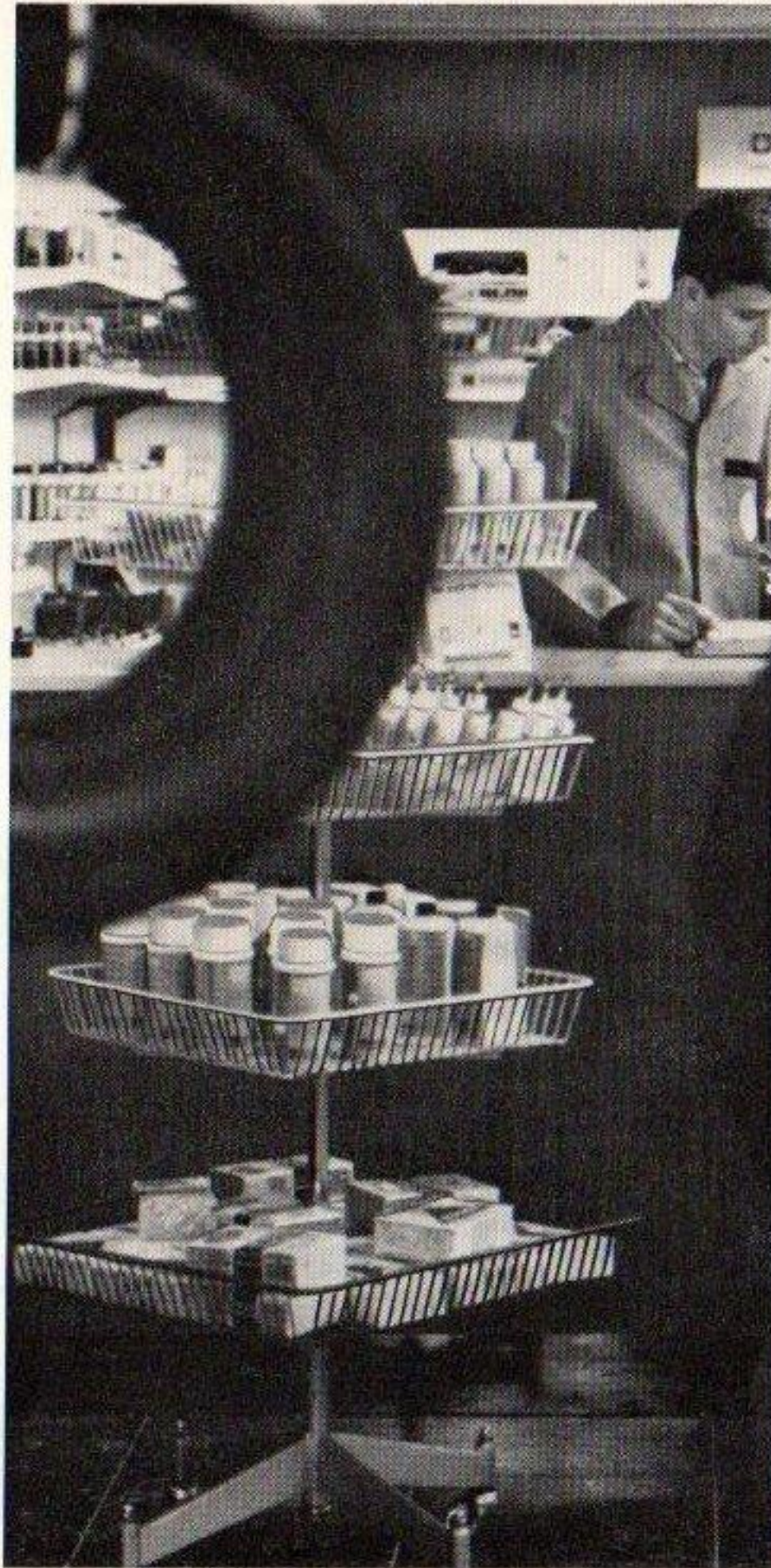
When installing the cleaner, ensure that the rubber seals on the carburetor connections, the preheating pipes and the rubber sleeves between top part and the two end pieces are fitted properly. Afterwards all connections must be made again.



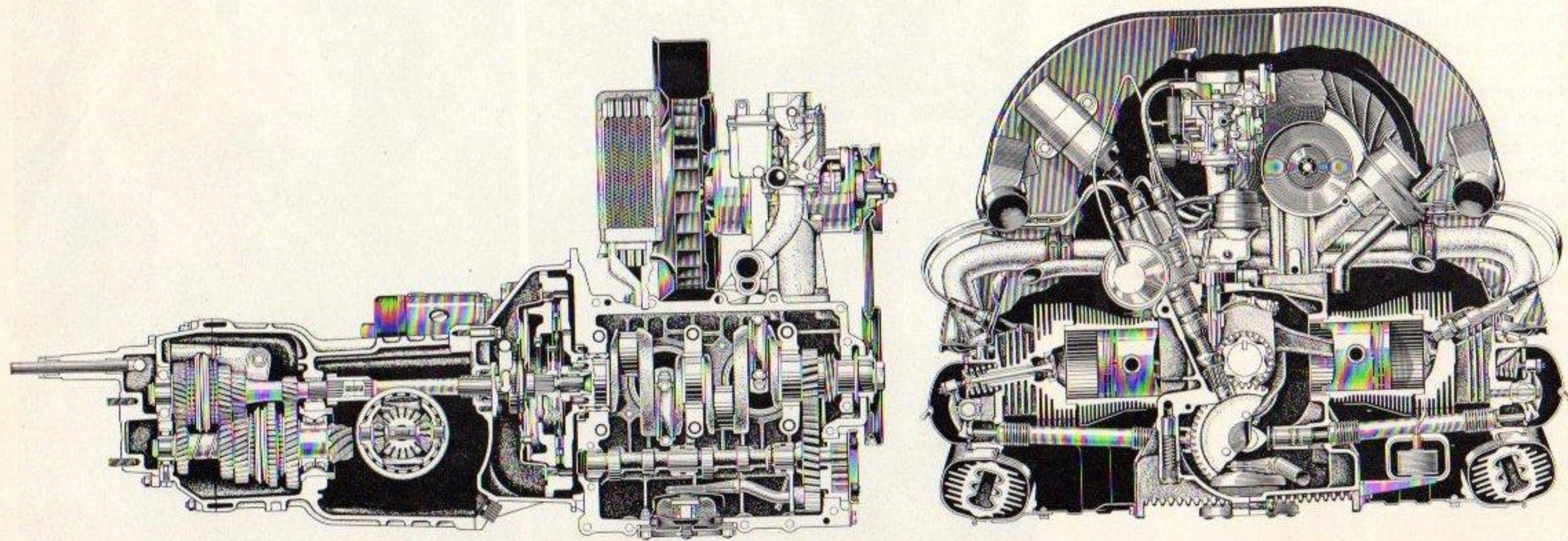
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Technical Data



Engines

50 bhp (Standard)

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

Bore	85.5 mm
Stroke	69 mm
Capacity	1584 cc
Compression ratio	7.5:1
Maximum output DIN	50 bhp at 4000 rpm
SAE	60 bhp at 4400 rpm
Maximum torque DIN	10.8 mkg at 2800 rpm
SAE	81.7 ft. lb. at 3000 rpm
Valve clearance with engine cold .	0.10 mm (.004 in.)
Fuel consumption	approx. 11.4 liters per 100 km 25 miles per Imp. gallon
Fuel rating	91 Octane (Res. F 1)
Oil consumption	0.5—1.4 liters per 1000 km 1.4—3.8 pints per 1000 miles

Transmission

Clutch pedal free play: 10—20 mm (.4—1.6 in.) • Single plate, dry clutch • Baulk synchronized four-speed gearbox and bevel gear differential in one housing • Double-joint rear axle • Gear ratios: 1st gear 3.80, 2nd gear 2.06, 3rd gear 1.26, 4th gear 0.82, reverse gear 3.80 • Final drive ratio: 5.428 •

66 bhp (Optional extra)

Four cylinder, four stroke, horizontally opposed engine attached to transmission and hypoid final drive to form a single unit at rear. — Thermostat controlled air cooling by fan on crankshaft. — Pressure feed oil system with gear-type pump, cooler, full flow filter and strainer. — Mechanical fuel pump. — Two downdraft carburetors with accelerator pumps and automatic chokes. — Oil bath air cleaner with thermostat controlled intake air preheating.

Bore90 mm
Stroke66 mm
Capacity1679 cc
Compression ratio	7.3:1
Maximum output DIN	66 bhp at 4800 rpm
SAE	74 bhp at 5000 rpm
Maximum torque DIN	11.6 mkg at 3200 rpm
SAE85.3 lb. ft. at 3400 rpm
Valve clearance with engine cold	
Inlet and exhaust	0.15 mm (.006 in.)
Fuel consumption *)	12.9 liters per 100 km 22 miles per Imp. gallon
Fuel rating	91 octane (Res. F 1)
Oil consumption	0.5—1.4 liters per 1000 km 1.4—3.8 pints per 1000 miles

*) measured consumption plus 10% with half load at a steady $\frac{3}{4}$ of maximum speed on level road without wind.

Chassis

Unitary chassis/body, frame plates reinforced with side and cross members, front axle bolted to frame side members, engine/transmission assembly fitted on four bonded rubber mountings.

Independent suspension: twin, cranked trailing arms with ball joints at front, double-joint axle with three-point trailing links at rear, torsion bar springing. Telescopic shock absorbers, stabilizer at front.

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

Hydraulic dual circuit foot brakes with brake pressure limiter in rear circuit, discs at front, drums at rear, (brake servo as optional extra, standard with 66 bhp engine) mechanical hand brake effective on rear wheels.

Wheelbase	2400 mm (94.5 in.)
Turning circle diameter	approx. 12.3 m (40 ft.)
Track at front ¹⁾	1386 mm (54.6 in.)
Wheel toe	0 ± 1.2 mm (.048 in.)
Camber	0° 40' ± 15'
Track at rear ¹⁾	1439 mm (56.6 in.)
Wheels	5½ J x 14 (Perforated wheel discs with drop center rims)

	Fire Truck	Ambulance	Micro Bus				all other Models	
			L Models					
Tires (tubeless)	185 R 14 C			7.00—14 8 PR (185 R 14 C*)		7.00—14 8 PR (185 R 14 C*)		
Pressures	kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi	kg/cm ²	psi
Front	2.1	30	2.1	30	2.1	30	2.0 ²⁾	(2.1) 28 (30)
Rear								
up to ¾ payload	3.1	44	2.2	31	2.6	37	2.8 ²⁾	(2.4) 40 (34)
full load	3.1	44	2.2	31	2.8	40	3.1 (2.8)	44 (40) 3.25 (2.9) 46 (41)

185 SR 14 Heavy duty

Front	2.1	30	2.1	30	2.1	30) ²⁾ For prolonged high-speed driving increase the pressures by 3psi (0.2 kg/cm ²)
Rear							
up to ¾ payload	2.2	31	2.4	34	2.6	37	
full load	2.2	31	2.8	40	2.9	41	

*) Optional extra
¹⁾ at permissible total weight

**) Optional extra
 Standard on 66 bhp models

		50 bhp engine	66 bhp engine	
Capacities	Fuel tank	60 liters (13 gallons)	60 liters	
	Engine	2.5 liters (4.4 pints)	3.5 liters (6 pints); 3.0 liters (5.25 pints) without filter change	
Performance	Transmission and final drive	3.5 liters (6.1 pints)	3.5 liters (6 pints)	
	Brake system	0.48 liter (.84 pint)	0.48 liters	
	Oil bath air cleaner	0.45 liter (.8 pint)	0.45 liters	
	Windshield washer	1.5 liter (2.4 pints)	1.5 liters	
	Maximum and cruising speed	110 kph (68 mph)	125 kph (78 mph)	
	Pick-up with cover, Pick-up with large platform	105 kph (65 mph)		
	High-roofed Delivery Van	105 kph (65 mph)	120 kph (75 mph)	
	Climbing ability with full load on good roads	1st gear 26 % 2nd gear 13 % 3rd gear 7 % 4th gear 3.5 %	28 % 14.5 % 7.5 % 4 %	
	Electrical system	Voltage	12 volts	12 volts
		Battery	45 Ah	45 Ah
Starter		0.7 hp	0.7 hp	
DC Generator with regulator		max. 38 Ampere, early cut-in	AC generator with regulator, max. 55 Ampere	
V-belt size		9.5 × 905	—	
Ignition distributor		with vacuum and centrifugal spark advance and speed limiter	with vacuum and centrifugal advance and speed limiter	
Firing order		1 — 4 — 3 — 2	1 — 4 — 3 — 2	
Basic ignition timing		7.5 before TDC, running at 850 rpm****)	5° after TDC at 850 rpm **)	
Dwell angle		47 ± 3° Δ 0.4 mm (.016 in.) contact breaker gap	47 ± 3° Δ 0.4 mm contact breaker gap	
Spark plugs		Bosch W 145 T 1; Beru 145/14; Champion L 88 A****)	Bosch W 145 T 2; Beru 145/14/3 ***)	
Plug gap		0.7 mm (.028 in.)	0.7 mm	
Plug thread		14 mm	14 mm	

*) Optional extra
) White mark on fan, set with stroboscopic lamp, vacuum hoses **on, oil temperature 50—70° C
 ***) or plugs with similar values from other manufacturers
 ****) Set with stroboscopic lamp, vacuum hoses **off**, oil temperature 50—70° C, throttle valve closed

Dimensions and weights	Micro Bus L	Micro Bus	Kombi	Delivery Van	High-roofed Delivery Van	Pick-up	
						without cover	with cover
Length mm (in)	4445 (175.0)	4420 (174.0)	4420 (174.0)	4420 (174.0)	4420 (174.0)	4420 (174.0)	4420 (174.0)
Width	1815 (71.5)	1765 (69.5)	1765 (69.5)	1765 (69.5)	1765 (69.5)	1765 (69.5)	1765 (69.5)
Height, unladen	1940 (76.4)	1940 (76.4)	1950 (76.8)	1955 (77.0)	2290 (90.2)	1955 (77.0)	2245 (88.4)
Ground clearance	185 (7.25)	185 (7.25)	185 (7.25)	185 (7.25)	185 (7.25)	185 (7.25)	185 (7.25)
Unladen weight kg (lbs)	1405 ¹⁾ (3097)	1360 ¹⁾ (2998)	1305 ²⁾ (2877)	1300 ³⁾ (2866)	1350 ³⁾	1300 ³⁾ (2866)	1335 ³⁾
Payload	875 (1928)	890 (1962)	995 (2193)	1000 (2204)	950 (2094)	1000 (2204)	965 (2127)
Gross vehicle weight	2280 (5026)	2250 (4960)	2300 (5070)	2300 (5070)	2300 (5070)	2300 (5070)	2300 (5070)
Permissible front axle load	1010 (2226)	1010 (2226)	1010 (2226)	1010 (2226)	1010 (2226)	1010 (2226)	1010 (2226)
Permissible rear axle load	1270 (2799)	1270 (2799)	1300 (2866)	1300 (2866)	1300 (2866)	1300 (2866)	1300 (2866)
Permissible trailer weights ⁴⁾ :							
with brakes	800 (1760)	800 (1760)	800 (1760)	800 (1760)	800 (1760)	800 (1760)	800 (1760)
without brakes	600 (1322)	600 (1322)	600 (1322)	600 (1322)	600 (1322)	600 (1322)	600 (1322)
Permissible load on roof ⁵⁾	100 (220)	100 (220)	100 (220)	100 (220)	—	—	—

Weights for 66 bhp models

Unladen weight	1425 ¹⁾	1380 ¹⁾	1325 ²⁾	1320 ³⁾	1370 ³⁾
Payload	855 (1884)	870 (1918)	975 (2149)	980 (2160)	930 (2050)
Gross vehicle weight	2280 (5026)	2250 (4960)	2300 (5070)	2300 (5070)	2300 (5070)
Permissible front axle load	1010 (2226)	1010 (2226)	1010 (2226)	1010 (2226)	1010 (2226)
Permissible rear axle load	1270 (2799)	1270 (2799)	1300 (2866)	1300 (2866)	1300 (2866)

- ¹⁾ without driver
- ²⁾ without driver, with seats
- ³⁾ with driver
- ⁴⁾ Subject to local regulations which may differ
- ⁵⁾ Use only roof racks supported in rain channel. The racks offered in the VW accessories range are of this type. Distribute load uniformly.
- ⁶⁾ With emergency light
- ⁷⁾ When carrying passengers, reduce load accordingly and distribute it in cab and on platform so that permissible axle load is not exceeded

	Double Cab Pick-up		Pick-up with large platform	Fire Truck	Ambulance
	without cover	with cover			
Length mm (in)	4420 (174.0)	4420 (174.0)	4470 (176.0)	4420 (174.0)	4420 (174.0)
Width	1765 (69.5)	1765 (69.5)	1980 (78.0)	1765 (69.5)	1765 (69.5)
Height, unladen	1950 (76.8)	2220 (87.4)	1955 (77.0)	2185 ⁶⁾ (86.0)	2175 ⁶⁾ (85.6)
Ground clearance	185 (7.25)	185 (7.25)	185 (7.25)	185 (7.25)	185 (7.25)
Unladen weight kg (lbs)	1350 ³⁾ (2976)	1375 ³⁾ (3031)	1380 ³⁾ (3042)	1440 ³⁾ (3174)	1515 ¹⁾ (3338)
Payload	950 ⁷⁾ (2094)	925 ⁷⁾ (2039)	920 (2028)	955 (2105)	585 (1297)
Gross vehicle weight	2300 (5070)	2300 (5070)	2300 (5070)	2395 (5279)	2100 (4629)
Permissible front axle load	1010 (2226)	1010 (2226)	1010 (2226)	1025 (2259)	1010 (2226)
Permissible rear axle load	1300 (2866)	1300 (2866)	1300 (2866)	1350 (2970)	1090 (2402)
Permissible trailer weights ⁴⁾ :					
with brakes	800 (1760)	800 (1760)	800 (1760)	800 (1760)	800 (1760)
without brakes	600 (1322)	600 (1322)	600 (1322)	600 (1322)	600 (1322)
Permissible load on roof ⁵⁾	75 (165)	75 (165)	—	—	—

Weights for 66 bhp models

Unladen weight					1535 ¹⁾ (3383)
Payload					565 (2245)
Gross vehicle weight					2100 (4629)
Permissible front axle load					1010 (2226)
Permissible rear axle load					1090 (2402)

- ¹⁾ without driver
- ²⁾ without driver, with seats
- ³⁾ with driver
- ⁴⁾ Subject to local regulations which may differ
- ⁵⁾ Use only roof racks supported in rain channel. The racks offered in the VW accessories range are of this type. Distribute load uniformly.
- ⁶⁾ With emergency light
- ⁷⁾ When carrying passengers, reduce load accordingly and distribute it in cab and on platform so that permissible axle load is not exceeded

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Vehicle data quiz

What sort of fuel does your vehicle require?

Regular fuel with a minimum rating of 91 octane.

What sort of engine oil?

HD oil for gasoline engines

SAE grade (viscosity) according to time of year. Further details on page 56.
In some countries HD oil is known as "MS" or "SD" oil.

What is the difference in quantity between the minimum and maximum marks on the dipstick?

50 bhp — 1.25 liter
66 bhp — 0.75 liter

How often should the engine oil be changed?

50 bhp — At 1000, 5000 and then every 5000 km (600, 3000 and every 3000 miles)
Amount required 2.5 liters.
66 bhp — At 1000, 5000 and then every 5000 km
The full flow filter element must be replaced at 1000, 10 000 and then every 10 000 km (6000 miles)
Amount required 3.5 liters when filter is changed 3.0 liters without filter change

What sort of oil is used in gearbox and final drive?

SAE 90 Hypoid oil to MIL-L 2105 B specifications (additive basis: Sulphur-phosphor)
or **SAE 80** in areas where average temperature is low

When is the gearbox and final drive oil changed?

Only at 1000 km (600 miles)

How often should the front axle be greased?

Every 30 000 km. If you do less than 30 000 km per year, grease once a year.

How much brake fluid should there be in the reservoir?

The fluid level should be between 15 and 20 mm below the screw cap.

Do you need anti-freeze in the winter?

Yes, but only for the windshield washer. The washer will work below freezing point if enough anti-freeze is added to the water.
Container capacity: approx. 1.5 liters

Which spark plugs should be used?

50 bhp — Bosch W 145 T 1; Beru 145/14; Champion L 88 A
66 bhp — Bosch W 145 T 2; Beru 145/14/3 } or similar value plugs
from other manufactures

Is the fan belt tension correct?

50 bhp engine only: It should deflect 11—14 mm when pressed firmly with the thumb in the center between the pulleys. A newly fitted belt should only deflect 9—11 mm because it stretches slightly after running a while. The belt designation is
9.5 × 900 LA "DA"
9.5 × 905 LA "DA"
9.5 × 905 LA "XDA"

Are the wheel nuts tightened properly?

They should be tightened to a torque of 14 mkg (100 lb. ft.)

What are the correct tire pressures?

The tire pressures are given on page 64.
M+S and M+S studded tires should be inflated 0.2 kg/cm² (3 psi) higher.
These pressures are for cold tires.
The pressures must not be reduced if tires are checked when hot and pressure is higher than specified.
Spare wheel: 3 kg/cm²

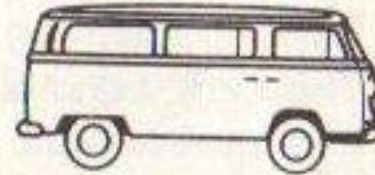
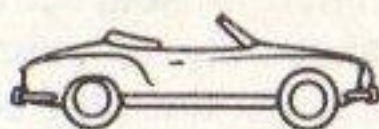
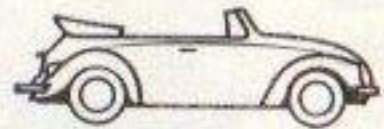
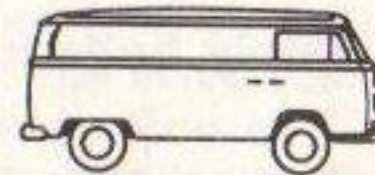
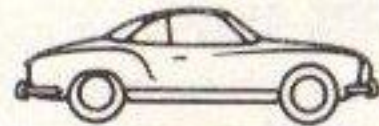
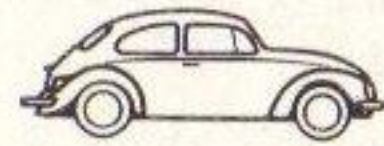
Where are the fuses to be found?

Under the transparent cover on the left below the instrument panel. See page 51 for additional fuses.



Insert

for Instruction Manual
1972 Models



Type 1

Type 2

Type 3

Type 4

Dear VW Owner:

During your stay in Europe, the **Instruction Manual** will acquaint you with the operation of your Volkswagen. The **VW Service Record** lists preventive maintenance and service requirements at recommended intervals. Always take your VW Service Record with you when taking your car to an Authorized Volkswagen Dealer for service.

Upon return to USA, contact your local Authorized VW Dealer who will exchange your European documents for the U. S. **Volkswagen Owner's Manual**. This booklet also includes the Maintenance Record.

To complement the European Instruction Manual, we have prepared this insert to acquaint you with some additional features of your U. S. equipped Volkswagen.

1 — Seats

In the Type 4 Wagon it is not possible to adjust the backrest to different angles and to the reclining position.

2 — Buzzer alarm

If you leave the key in the ignition/steering lock, a buzzer alarm will sound when the driver's door is opened. This is your reminder to remove the key.

3 – Safety belts

A safety belt is provided for each seating position in your Volkswagen.

For your protection, **fasten your safety belt before driving off and wear it at all times while the car is in motion.**

A shoulder belt should not be worn by a person less than 4'7" in height, because it would not be in its most protective position, and therefore may increase the possibility of injury in a collision.

Do not strap in more than one person in each belt.

Keep safety belts clean. If cleaning is necessary, wash them with a mild soap solution, without removing them from the car.

Do not allow the belts to retract until they are completely dry.

Do not bleach or dye safety belts. Do not use any other cleaning agents. They may weaken the webbing.

Check buckles and retractors for proper function. Check belt webbing and bindings for damage.

Types 1, 3 and 4

Safety belts for front seats

The front seats are equipped with lap/shoulder belts with an automatic locking retractor. The belt adjusts automatically to your size and movements as long as the pull on the belt is slow. **A sudden motion locks the belt.** The automatic locking mechanism in the retractor will also lock the belt when driving down a steep hill or in a curve, and when the car's speed is reduced.

An audio-visual warning system for the seats will remind the driver and front passenger to put on their safety belts. The buzzer will sound and the **FASTEN SEAT BELTS** sign on the dashboard will light up as soon as a gear is engaged. The warning system will also be activated if the passenger in the front passenger seat is not wearing a safety belt.

To fasten your lap/shoulder belt, grasp the belt tongue and pull the belt in a continuous slow motion across your chest and lap.

Insert the belt tongue into the corresponding anchor housing on the center tunnel and push down until it is securely locked with an audible click. **Belts should not be worn twisted.**



To unfasten the belt, push in the release marked PRESS on the corresponding anchor housing. The belt tongue will spring out of the anchor housing.

To store the lap/shoulder belt, guide the belt tongue to its stowed position behind the assist strap on the door post.

For the passenger's comfort, the retracting forces of the belt are relatively low and winding up of the belt may be slow. Make sure the belt is fully wound up on the retractor.

The belt of the unoccupied passenger seat should be fully wound up on its retractor so that the belt tongue is in its stowed position behind the assist strap on the doorpost. This reduces the possibility of its becoming a striking object in case of a sudden stop.

Safety belts for rear seats

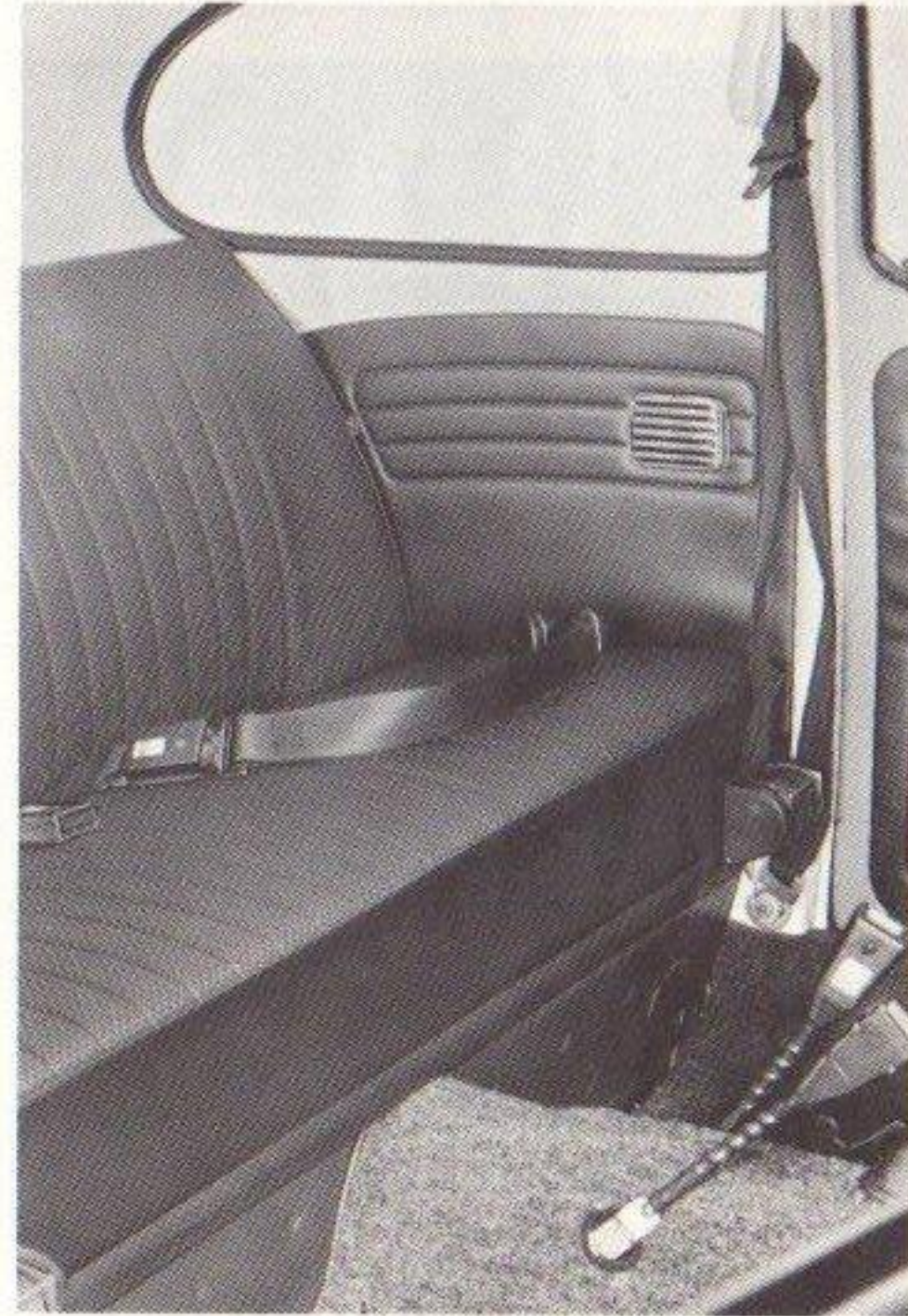
The rear seats are equipped with lap belts with an automatic retractor. The belt adjusts to your size and movements as long as the pull on the belt is slow. **A sudden motion locks the belt.**

In the VW 111: If you have pulled out too much of the belt, the retracting mechanism will take up the slack until the belt fits snugly across your lap and will stay locked in this position.

To fasten your lap belt, grasp the belt tongue on the outboard side of the seat, and pull it across your lap and insert the tongue in the inboard buckle. Push in until you hear a click to be sure the belt is locked securely.

To unfasten the belt, push in the release marked PRESS in the buckle.

To store the belt, guide the belt tongue to the retractor. Make sure the belt is fully wound up on the retractor. Belt tongue and buckle should always be kept on top of the seat for ready use. Do not permit them to get caught under the seat.

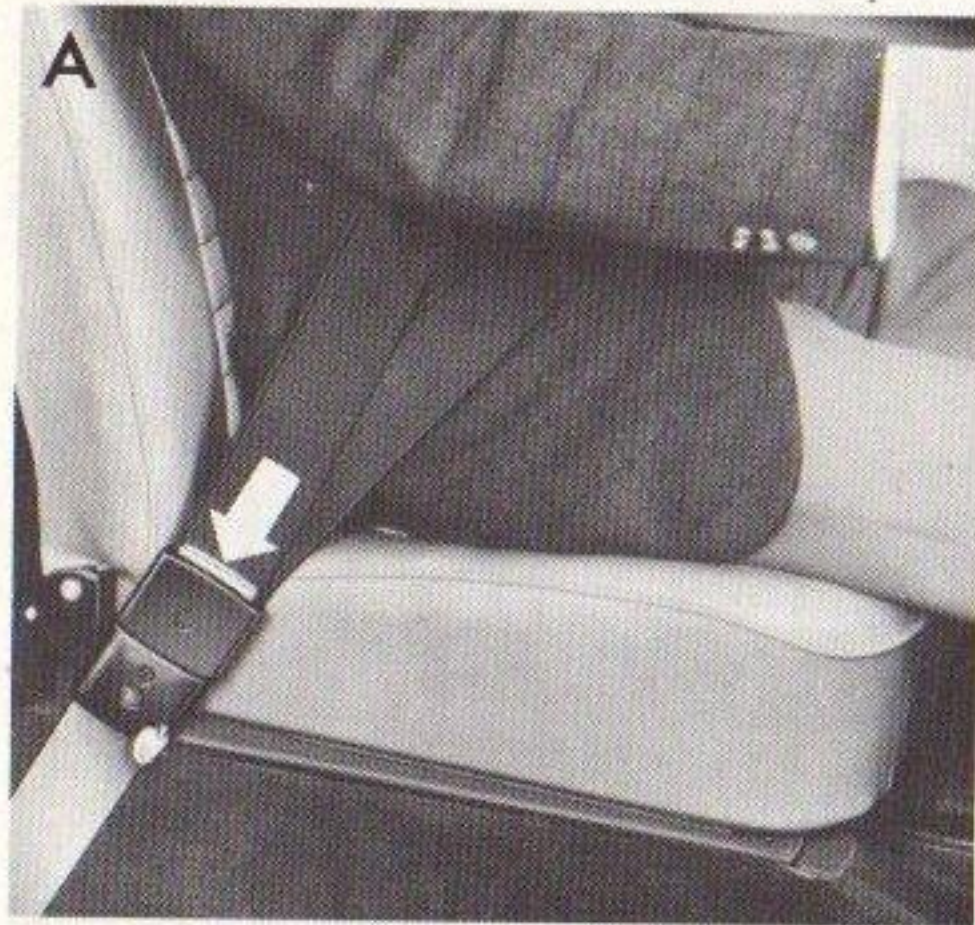


Type 2

Store safety belts of unoccupied seats properly. This reduces the possibility of their becoming a striking object in case of a sudden stop.

Note

There are two types of safety belts for the front and rear seats. Your Type 2 is equipped with either one of these belts.



Safety belts for front seats

The front seats are equipped with **combination lap/shoulder belts**. For easy storage a hook is provided on the door post.

In models with a three-passenger front seat, the middle seating position is equipped with a lap belt. See next page on how to use a lap belt.



To fasten your combination lap/shoulder belt, grasp the belt tongue, take it off the hook on the door post and pull the belt across your chest and lap.

Insert the belt into the anchor housing on the inboard side of the seat and press until it is **securely locked**.

Belts should not be worn loose or twisted. They should fit snugly across your body. The lap belt section should be completely unrolled from the retractor.

To adjust the length of the belts, press in the release on the buckle (arrow) as you pull the respective belt section in the desired direction. With this release it is also possible to adjust the belt length with the buckle already engaged in the anchor housing. Take up any slack of the loose belt by moving the slide on the belt.

To unfasten the belt . . .

- . . . on belts with lever on the anchor housing (A): pull the lever with the white top on the anchor housing upward.
- . . . on belts with PRESS button on the anchor housing (B): push in the release marked PRESS in the anchor housing. The belt tongue will spring out of the anchor housing.

When not in use the belt should be hung on the hook provided for this purpose on the door post.

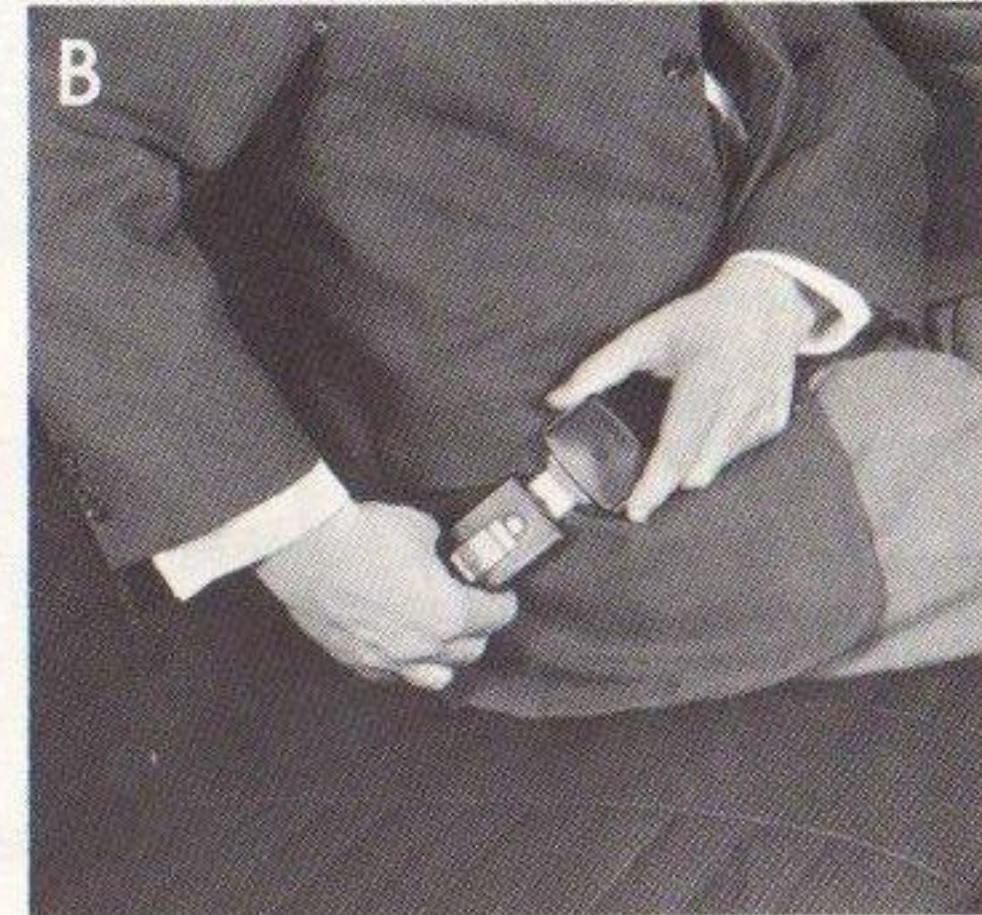
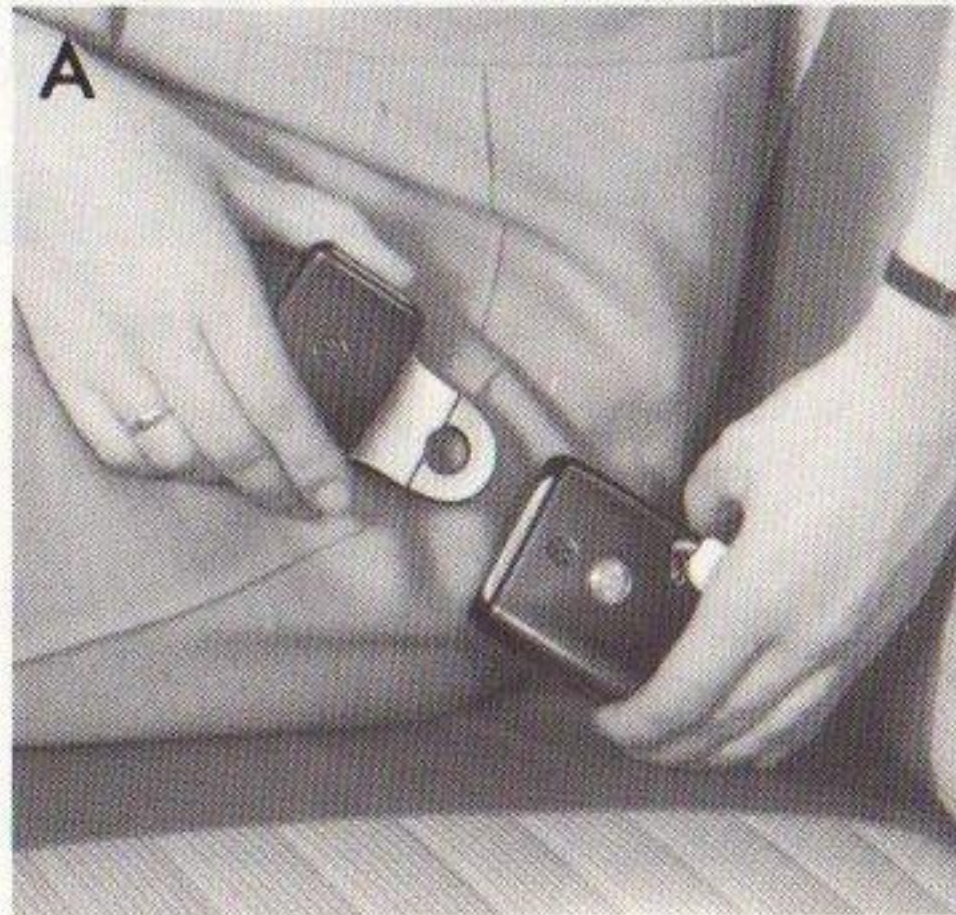
To **lengthen** or **shorten** the rear belt, hold the belt tongue at a right angle to the belt and pull the respective belt section in the desired direction. Take up any slack of the loose belt end by moving the slide on the belt.

Safety belts for rear seats

The rear seats are equipped with adjustable lap belts.

Pull the longer section across your lap and insert the tongue in the inboard buckle. Press until you hear a click to be sure the belt is locked securely.

The belt should not be worn loose or twisted.



To unfasten the belt . . .

- . . . on belts with lever on the buckle (A): pull the lever (white top) on the buckle.
- . . . on belts with PRESS button on the buckle (B): push in the release marked PRESS in the buckle.

The belts should always be kept on top of the seat for ready use. Do not permit them to get caught under the seat.

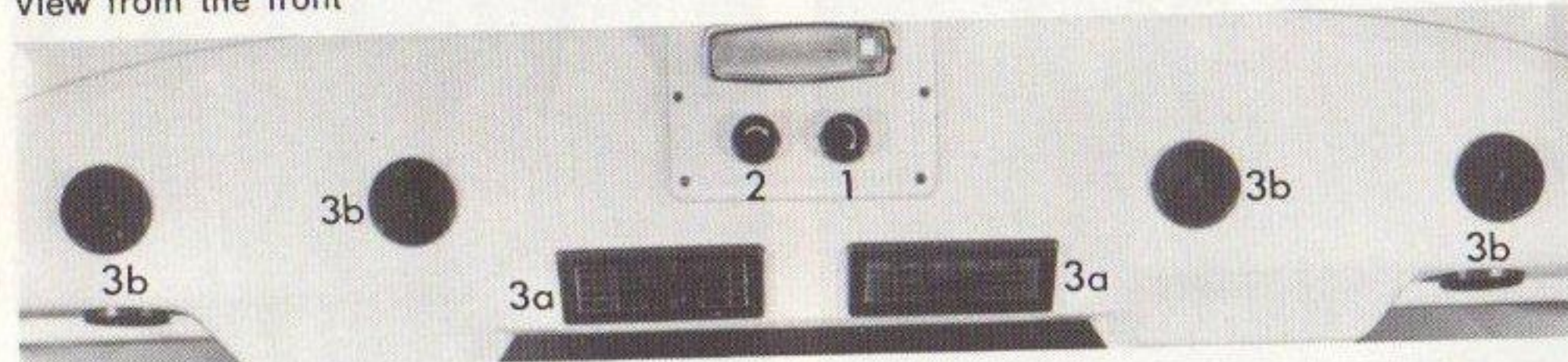
4 – VW Air Conditioner (optional equipment)

Operating controls

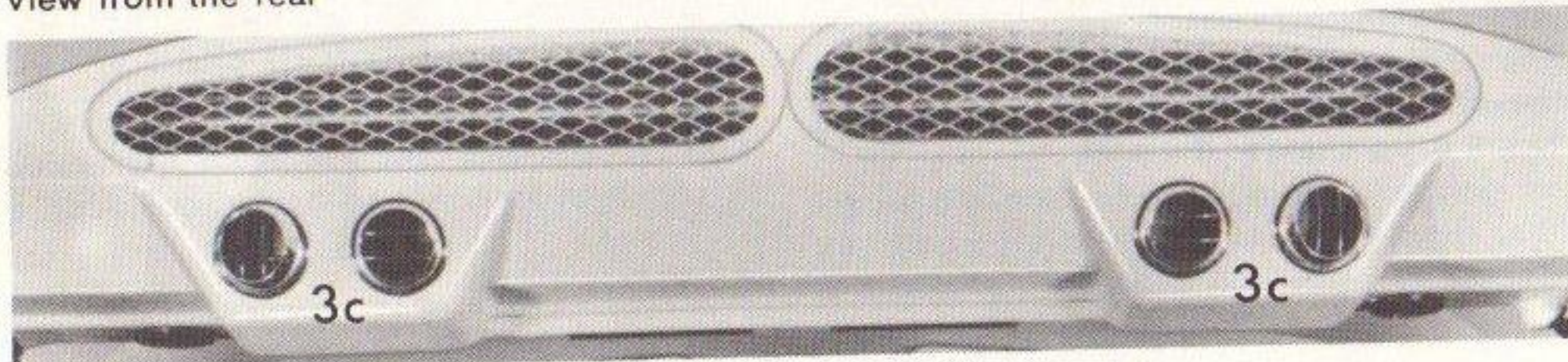


Type 2

View from the front



View from the rear



1 – Air volume switch (“AIR”)

This switch serves two functions. It turns the air conditioning system on and off and controls the fan speed. The fan positions are:

- 1st position – **HIGH**
- 2nd position – **MEDIUM**
- 3rd position – **LOW**

2 – Air temperature switch (“TEMP”)

By progressively turning this switch to the right, the desired cooling range can be selected. It is in the coldest position when turned as far as possible to the right.

3 – Air discharge louvers

By moving the center vane these louvers can be adjusted to direct the conditioned air flow upward, downward or sideways.

Type 2

The two rectangular louvers (3 a) can be adjusted by moving the vanes up, down or sideways to direct the air flow for the front seats in the desired direction.

The six round louvers (3 b) are adjustable by turning them clockwise or counterclockwise.

The four ball type outlets (3 c) can be rotated in their sockets to any position to direct cool air into the passenger compartment as desired.

Starting the Air Conditioner

With the windows and fresh air ventilation turned off, turn the air temperature switch to the desired position and select the air volume speed desired. On extremely hot days turn the air volume to full capacity and open a window. Within a few minutes, the hot air will be forced out of the car and the window can be rolled up as cooling starts.

Adjust the air discharge louvers to the desired position.

Stopping the Air Conditioner

Turning the air volume switch to the "OFF" position stops the entire air conditioning system.

When restarting a stalled engine, it is not necessary to turn off the air conditioner. The current to the air conditioner is interrupted during the starting process.

Operational hints

If the volume of cold air suddenly decreases it is likely that the evaporator coil is "icing up". To remedy this, turn the air temperature switch to the left and leave in this position until the air volume is back to its original rate.

If the car interior becomes too cold after adjusting the air volume, turn the air temperature switch to the left until the desired comfort level is reached.

If the windows fog over on the **exterior** on warm, humid days, turn the air temperature switch to the left until the windows clear up, or turn the windshield wipers on.

If the windows fog over on the **interior**, they can be quickly cleared by turning on the air conditioner.

During highway driving, set the air temperature switch in approximately the middle position.

Type 2

For best overall comfort do not aim the air flow directly at a person, but allow the cooling air to circulate throughout the vehicle. Avoid pointing the round ball type outlets towards the ceiling. In this position the cooling air might be drawn back into the unit without cooling the car.

Maintenance hints

During the winter season, it is advisable to operate your Air Conditioner for a brief moment every week. This will help to keep the seals and fittings properly lubricated.

After the winter months and before extended summer usage, the air conditioner should be checked and, if necessary, serviced by an Authorized VW Dealer.

The condensers should be checked periodically for cleanliness. If the louvers are clogged, the condensers should be washed down with water.

If, upon inspection, the condenser fins are bent, the car should be taken to an Authorized VW Dealer for straightening of the condenser fins.

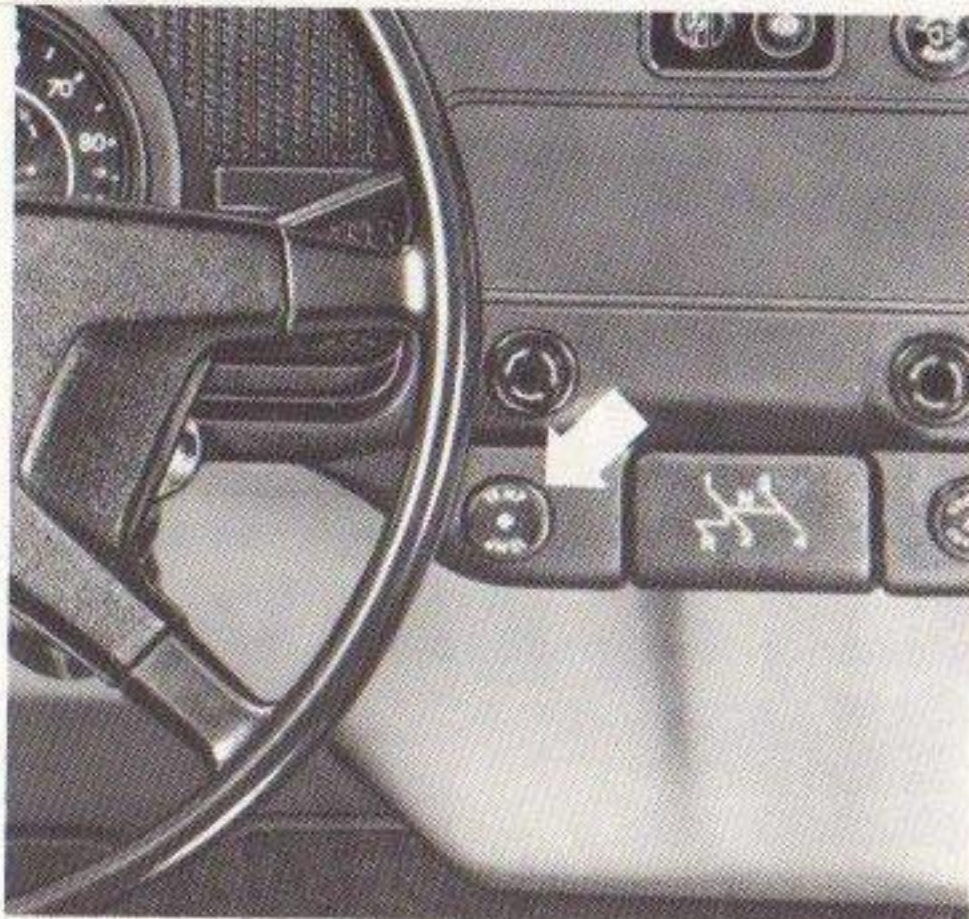
An air-conditioned Volkswagen should only be raised on a lift that provides adequate clearance to prevent damage to the condenser.

Circuit breaker

An automatic resetting circuit breaker for the current supply of the air conditioning system is located under the rear seat (on Type 2 models: in the engine compartment). It is connected directly to the battery.

5 – VW Auxiliary Heater

(optional equipment on Types 1, 2 and 3.)



Do not start or let the engine or heater run in an enclosed, unventilated area to warm up the car. Exhaust fumes from the engine or gasoline heater contain carbon monoxide, which is colorless and odorless. Carbon monoxide, however, is a very harmful gas, and may be fatal when inhaled.

The heater can be operated without turning on the engine. However, when it is very cold we recommend that you start the engine first, as full battery power is required for starting the engine under cold weather conditions.

To turn the heater on . . .

Types 1 and 3:

Pull the green heater switch out (arrow).

A heat limit switch will turn the heater off periodically. The heater will come on again automatically within 3 minutes.

Type 2:

Turn the green heater switch on the dashboard slightly to the right.

To regulate the heat temperature, pull out the inboard knob on the front right-hand side below the driver's seat.

All Types:

A lamp in the green heater switch will glow indicating that the heater is on.

To turn the heater off . . .

Types 1 and 3:

Push the heater switch in.

If your engine stalls, turn the heater off first before restarting the engine.

Type 2:

Turn the heater switch to the left.

All Types:

The green indicator light in the switch will go out when the heater is turned off. The blower motor will continue to run until the heater has cooled down.

The auxiliary heater must be turned off when filling the fuel tank.

It is not necessary to wait until the fan has stopped.

Pre-heating your car

You can pre-heat the interior of your car for a set period of time before starting the engine. This is what you do:

Types 1 and 3:

To turn the heater on, pull the heater switch out. To avoid an unnecessary drain on the battery, turn the heater off after about 25 to 30 minutes if the engine has not been started in the meantime.

To turn the heater off, push the switch in.

Type 2:

Start the same way as described above under "To turn the heater on..." for Type 2. To activate the built-in timer, turn the heater switch further to the right. The maximum sweep of the timer constitutes about 25 to 30 minutes of heater operation. The timer can be set at any desired intermediate position.

As soon as the timing cycle is completed, the heater will shut itself off. If the engine is started before the timing cycle is completed, the heater will continue working, and can then be turned off manually whenever desired.

To switch the heater off, turn the heater switch fully to the left.

To give you full battery power, the heater should not run while starting the engine:

Within the timing cycle

Switch off the heater manually.

With the timing cycle completed

The heater stops working automatically while operating the starter.

Maintenance hints

The heater normally requires no special maintenance. It is advisable, however, to have the heater plug checked once a year before the cold weather sets in and a new plug installed if necessary. The fuel system should also be checked for cleanliness and the electrical connections for tightness.

During the winter and when driving over very poor roads, mud or snow may tend to accumulate in the exhaust and combustion air intake pipes. Have these pipes checked for blockage from time to time so that the heater continues to work properly.

When the heater is not in use for long periods, for instance during the summer, the fuel in the heater can evaporate. It is therefore advisable to operate the heater briefly once a month when it is not in regular use.

6 — Note

The U. S. beetle-type Volkswagens are equipped with drum brakes on the front and rear axles. (The reference in the Instruction Manual VW 1302 on page 70 that the front brakes on the 1302 S [Sedan 113 and Convertible]

are disc brakes is for European cars only.) The Volkswagen Sedan 111 has a rear axle with trailing arms and diagonal links. Power is transmitted via drive shafts and constant velocity joints.