

**NSU**

**Ro 80**

OPERATING  
INSTRUCTIONS



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**THE FRONT DOORS OF THE Ro 80** are opened and closed from outside with the large key. From inside, the front and the rear doors are secured by push button locks. The system is a practical one, since it will lock all the door handles, with the exception of the driver's door. The additional childproof safety catch in the back doors will certainly contribute considerably to reassuring concerned parents, when their children are in the back. This is especially important for the driver, who thus needs not look into the back so often. As a protection against being locked out when you are leaving your vehicle for a short moment with the key remaining in the ignition lock, the push button lock at the driver's door will be automatically released when that door is slammed closed. Open doors will not kick you in the back when entering or leaving. A retaining device will keep them open.

## HANDLING:

### OPERATING THE DOORS FROM OUTSIDE

- UNLOCKING — By turning key forward. Key will automatically spring back when the door is unlocked.
- OPENING — By pushing on door button.
- LOCKING — Turn key towards the rear. Key will automatically spring back after locking the door.

### OPERATING THE DOORS FROM INSIDE

- SECURING — Push button down.
- RELEASING — Pull button up.

### CHILDPROOF SAFETY CATCH

- Push down lever in door lock — door can no longer be opened from inside.

**THE DOOR FITTINGS, TOO,** are extremely safe. The door handle, for example, with which you open the door from inside, is recessed. This will prevent any unintentional opening of the door. Another advantage: the recessed door handle permits full use of the arm rest.

**THE STEEL SLIDING ROOF** (optional) is electrically opened and closed by pushing the button located between the sun visors in the roof lining. In the event of electric line trouble, the sliding roof can also be actuated manually by means of the auxiliary crank attached with clips to the inner side of the cover cap of the electric motor. Refer to **HANDLING!**

## **HANDLING:**

### **OPERATING THE DOORS FROM INSIDE**

- **OPENING** — Pull button up.
- Pull door handle.
- **CLOSING** — By pulling on door handle.

### **OPERATING THE WINDOWS**

- **OPENING** — Turn window crank rearwards.
- **CLOSING** — Turn window crank forward.

### **STEEL SLIDING ROOF**

- **TO OPEN** — Push toggle switch toward the rear.
- **TO CLOSE** — Push toggle switch toward the front

### **MANUAL OPERATION**

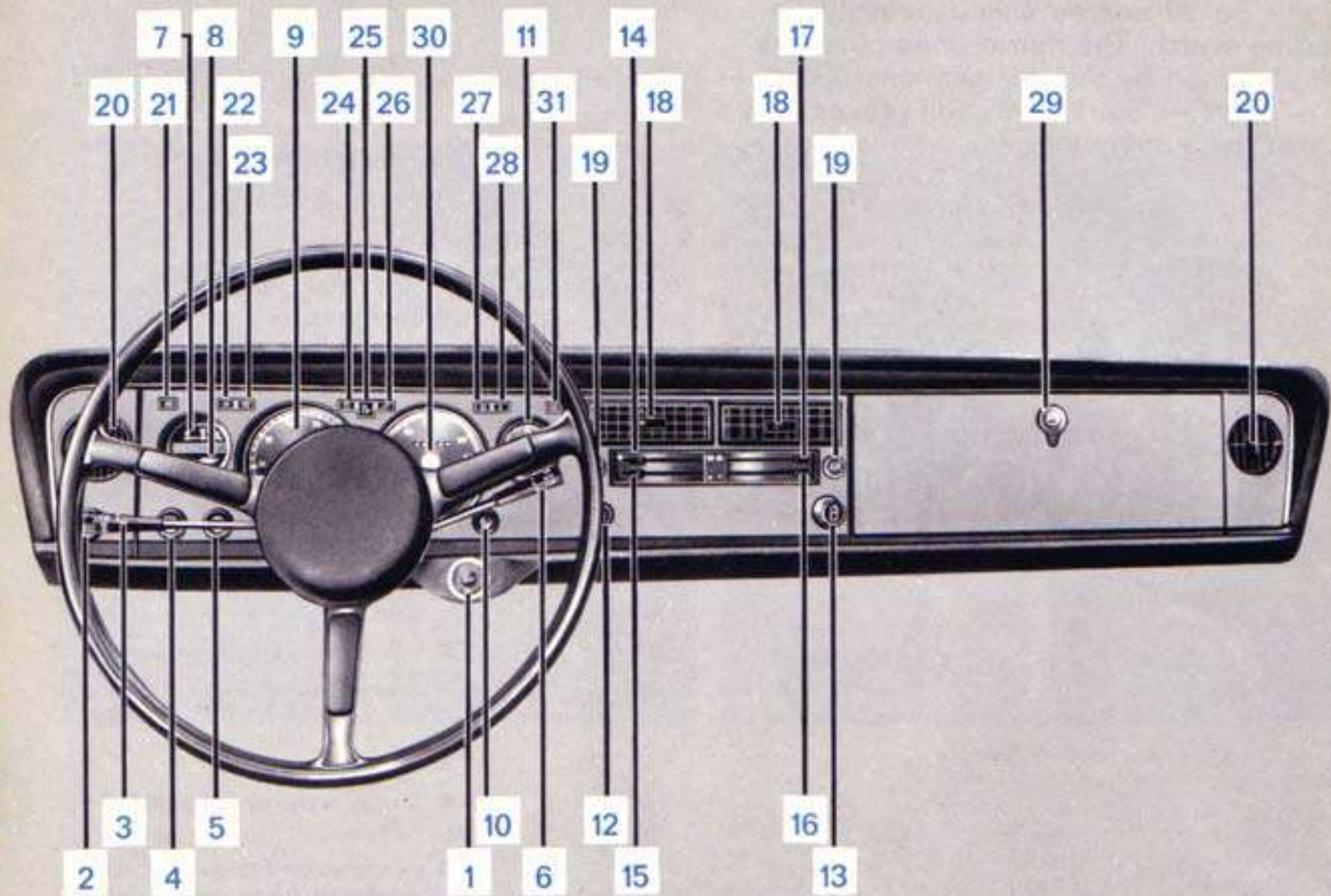
- Remove cover of electric motor above rear interior light with a Philips screw driver.
- Remove rubber cap on slide roof mechanism.
- Remove screw under rubber cap.
- Screw-in hand crank instead of removed screw.
- Close sliding roof by turning to the right, open by turning to the left.

**THE INSTRUMENT PANEL** of the Ro 80 should be given your full attention prior to your first start. Imprint the significance of all control levers, instruments and pilot lamps in your mind. A good look at the instrument panel will always pay, also when driving, on the one hand at the pilot lamps, and on the other, checking the speedometer. Why? As a result of its design, the Ro 80 is not only very fast, but because of its quiet engine also remarkably silent. Accelerate your vehicle to 110 mph (180 km/h). The driving noise is so low that until you have become accustomed to your Ro 80 you will consider the ride to have been very much slower. The outstanding brakes and road-hugging characteristics will help you to get the better of any situation on the road. But checking your speed — for example prior to a speedway exit — will be of considerable help for steering

- 1 Ignition and steering lock [page 18]
- 2 Light switch: parking light, clearance light, headlights [page 20]
- 3 Blinker switch, passing signal switch, dimming switch [page 20]
- 4 Fog lamps, rear window heater [page 20, 25]
- 5 Warning light system [page 21]
- 6 Fanfare horn, windscreen wiper (interval control), windscreen washer, automatic wiper/washer system [page 21]
- 7 Fuel gauge [page 22]
- 8 Coolant temperature indicator [page 22]
- 9 Revolution counter [page 22]
- 10 Regulator for instrument lights and cancelling the daily mileage counter [page 23]
- 11 Time clock [page 23]
- 12 Starting aid [page 23]
- 13 Cigar lighter [page 23]
- 14 Warm air [page 24]
- 15 Temperature dosing [page 24]
- 16 Warm air distribution [page 24]
- 17 Switch for fresh air control [page 24]
- 18 Adjustable fresh air grid [page 24]
- 19 Knob for leg room ventilation, left and right [page 25]
- 20 Side window vents [page 25]
- 21 Fog lamps pilot (yellow) [page 20]
- 22 Blinker pilot light (green) [page 20]
- 23 High beam pilot light (blue) [page 20]
- 24 Fuel control lamp (reserve 8 lit., orange) [page 22]
- 25 Hand brake and dual circuit brake pilot light (red) [page 22, 36]
- 26 Oil and coolant pilot light — oil pressure and coolant temperature (green) [page 22, 99]
- 27 Pilot lamp for starting aid (yellow) [page 23]
- 28 Charging control lamp (red) [page 22, 99]
- 29 Glove box [page 26]
- 30 Speedometer with daily mileage counter [page 22]
- 31 Pilot light for rear window heater (yellow) [page 25]

**NOTE:** Figures in parentheses [ ] indicate on which page you will find an accurate description.





**THE COMBINATION SWITCHES** permit the driver to operate the blinker lights, the passing signal, the fanfare horn, the dimmer switch, the windscreen wiper and the windscreen washer while driving without removing a hand from the steering wheel. For better memorizing the handling procedure, all the switching operations in connection with the lighting system were combined on the left lever of the combination switch; the fanfare horn, as well as the windscreen wiping and washing system are on the right-hand lever. So it is easily remembered:

**LEFT** = Blinkers and lighting system  
**RIGHT** = Fanfare horn, windscreen wiping and washing unit

**NOTE:** Parking lights will light up only with the ignition switched off. Clearance lights and headlights can be switched on only with the switch of the parking lights in zero position.

## HANDLING:

### 2 PARKING LIGHTS, CLEARANCE LIGHTS, HEAD LIGHTS

#### Parking light left

- Turn switch knob towards the left.

#### Parking light right

- Turn switch knob towards the right.

#### Clearance lights

- Pull switch knob into first lock.

#### Headlights

- Pull switch knob into second lock.

### 3 BLINKER LIGHTS, PASSING SIGNAL, DIMMER SWITCH

(left-hand lever of combination switch)

#### Blinker (pilot lamp green)

- LEFT — Push lever down.
- RIGHT — Push lever up.

#### Passing signal

- Pull lever.

#### Dimmer switch (high beam light blue)

- DIMMED — Lever in normal position.
- TURNED ON — Lever pushed forward (halogen headlights are automatically cut in).

### 4 FOG LAMPS AND REAR WINDOW HEATER

#### Fog lamps (pilot light yellow)

- Pull switch knob. Fog lamps will burn only with the lights switched on.

#### Rear window heater (pilot light yellow)

- Refer to page 25 under "Heater".

## HANDLING:

### 5 WARNING LIGHT SYSTEM

With the warning light system switched on all 4 blinker lights will blink simultaneously.

- Pull switch knob. The system will function in any position of the ignition switch.  
Pilot lights: in switch knob and blinker pilot light.

### 6 FANFARE HORN, WINDSCREEN WIPER, WINDSCREEN WASHER

(right-hand lever of combination switch).

Fanfare horn

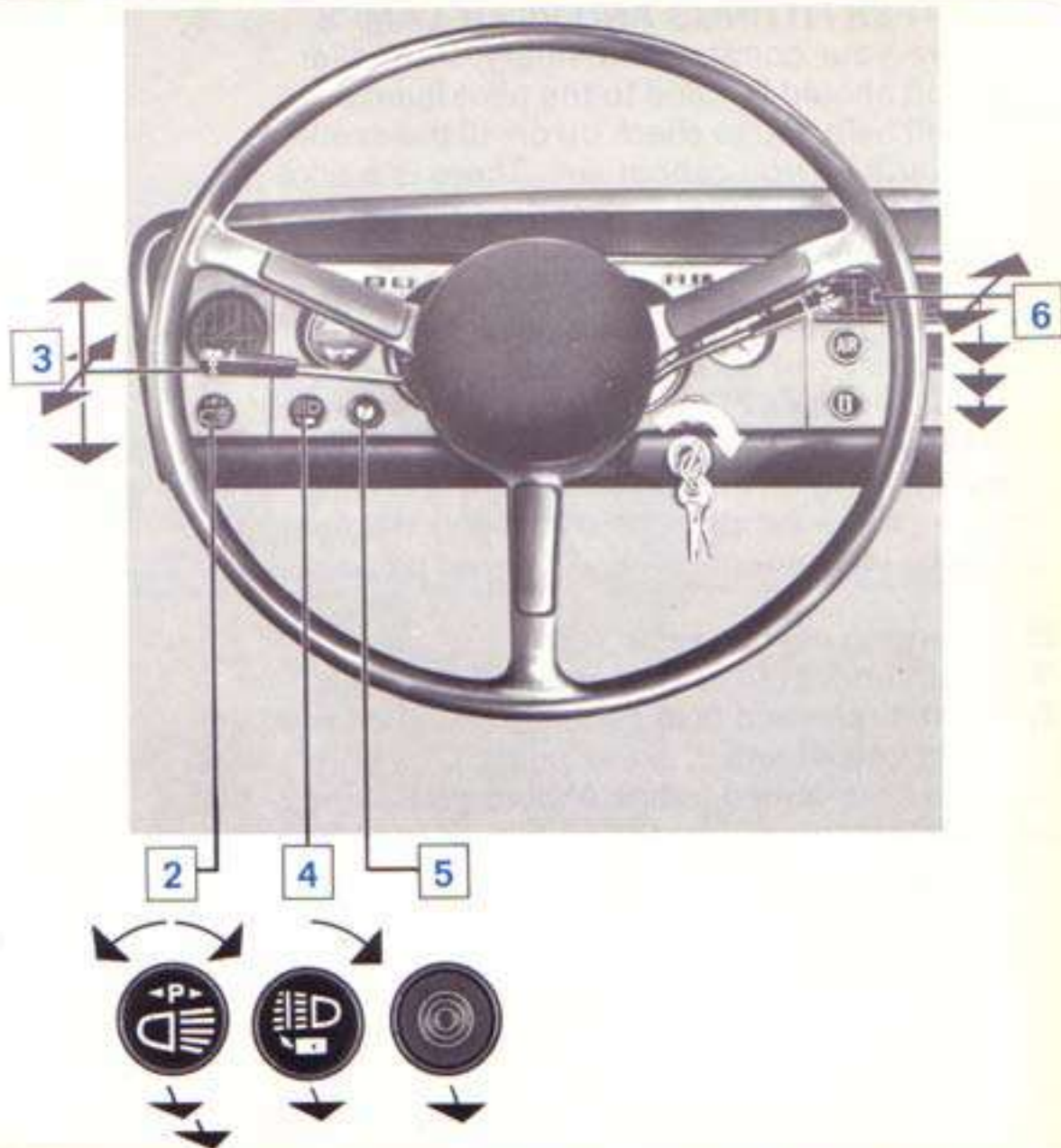
- Pull lever.

#### Windscreen wiper

- Shift lever down into 1st lock. In intervals of approx. 7 secs, the wiper performs 2 wiping movements.
- 1st speed stage (slow) — shift lever down into 2nd lock.
- 2nd speed stage (fast) — shift lever completely down.

#### Automatic windscreen washer

- Push lever forward: jets spray water onto the windscreen; wiper starts automatically during washing procedure.



## THE OTHER FITTINGS AND PILOT LAMPS

all serve your comfort and safety. Particular attention should be paid to the pilot lamps. They will help you to check up on all the events and goings-on you cannot see. There is a pilot lamp for the fuel reserve, another will keep the oil pressure under control. The water temperature and the heater for the rear window are both checked by pilot lamps. An important factor is that you can even check the braking system by means of a pilot lamp. For closer details refer to page 36.

When the ignition key is turned to the driving position, three lamps should immediately light up on the instrument panel, if the vehicle is in order:

- Charging current pilot, red
- Fuel, lubricants and coolant pilot, green
- Hand brake and dual circuit brake pilot, red (only when hand brake is pulled).

The two first named lamps should go out the minute the engine runs, the pilot lamp for the brake system, when the hand brake is released.

## HANDLING:

7

### FUEL INDICATOR (Tank capacity 83 lit.)

- RESERVE (red field on indicator)  
Fuel for approx. 60 miles (100 km) driving.
- FUEL CONTROL LAMP, orange.  
Fuel for approx. 24 miles (40 km).  
Fill up immediately.

8

### COOLANT TEMPERATURE INDICATOR

- WHITE FIELD = Operating temperature.
- RED FIELD = Danger (green warning light lights up, refer to page 99).

9

### REVOLUTION COUNTER

- The 115 HP – NSU/Wankel rotary piston engine is insensitive to engine speeds. Therefore, in exceptional cases, when accelerating and passing, the vehicle can be driven for a short period within the danger zone marked red.

10

### INSTRUMENT LIGHTS AND DAILY MILEAGE COUNTER

#### Instrument lights

- BRIGHT — turn small, central knob towards the right. The system can be steplessly adjusted.
- DARK — turn knob towards the left.

#### Daily mileage counter

- Return by turning the outside knob towards the right.

**THE AIR CONDITIONING SYSTEM** will always be a pleasure. On hot days you can conjure fresh air to your car, and when the winter comes, the interior will be pleasantly heated. For Ro 80 drivers, who are in a hurry in the morning, a particularly fast system for demisting and defrosting of the windows has been installed. The grid nozzles at the right and the left on the instrument panel will blow the side windows clear. The same system is of course also available for the windscreen and should provide constantly good visibility. The Ro 80 has something special everywhere. For the air conditioning system it is the heatable rear window, which is controlled by a switch on the instrument panel. Each Ro 80 driver will appreciate its value, when the rear window is getting dimmed or icy.

## HANDLING:

14

### HEATER AIR

- ON — Move adjusting lever towards the right; when half open, the fan will be automatically switched on.

15

### TEMPERATURE DOSING

- COLD — Move adjusting lever towards the right.
- WARM — Move adjusting lever towards the left.
- CONTROL is stepless.

16

### WARM AIR DISTRIBUTION

The warm air can be guided fully to the windscreen and the side windows, to the leg room, or uniformly through all warm air nozzles.

- HEATING THE LEG ROOM — Move adjusting lever to the left.
- HEATING THE WINDSCREEN AND SIDE WINDOWS — Move adjusting lever to the right.

17

### FRESH AIR CONTROL

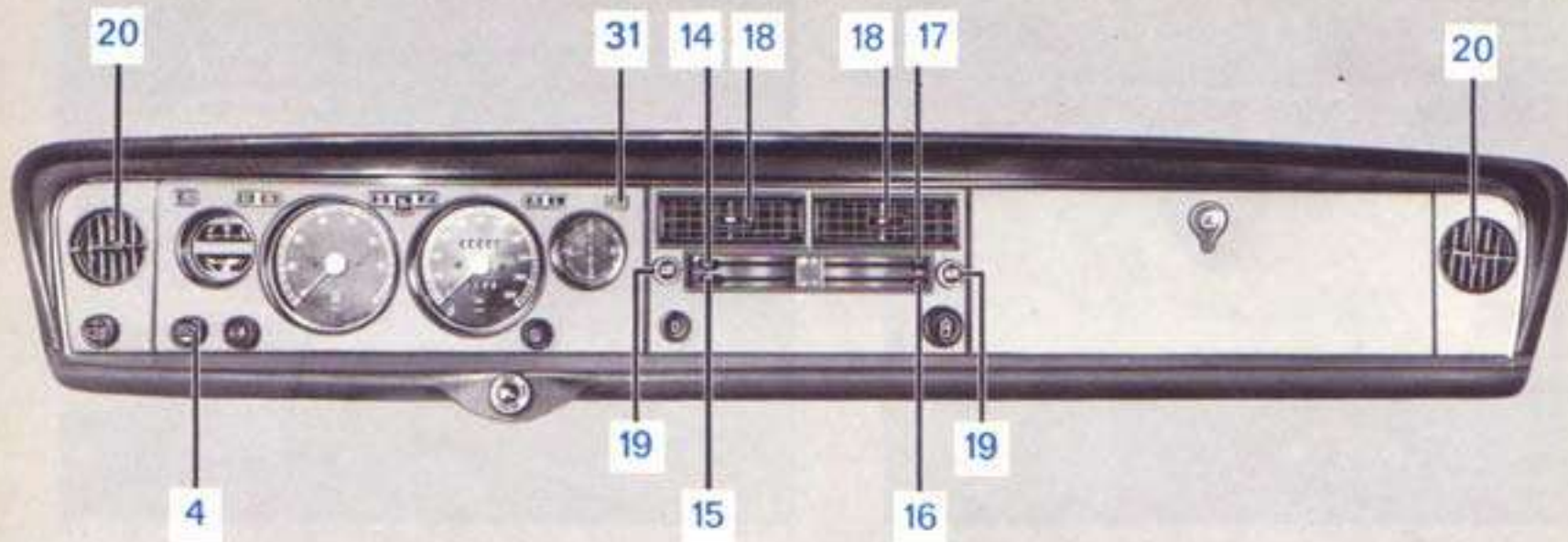
The fresh air can be fed in stepless doses by shifting the adjusting lever.

- OPEN — Move adjusting lever towards the left.
- CLOSED — Move adjusting lever towards the right.

18

### FRESH AIR GRID

- ADJUSTMENT — The fresh air can be directed in the desired direction by means of the adjusting lever, towards the left, the right, upwards or downwards.



## HANDLING:

### 19 LEG ROOM VENTILATION

By pulling the knobs, additional fresh air can be lead into the interior through the grids located on the right and left side under the instrument panel.

Left knob = driver's seat

Right knob = front passenger's seat.

- Pull knob.
- Direct air flow as desired by adjusting the fresh-air grid.

## HANDLING:

### 20 SIDE WINDOW VENTILATION, refer to 16

For adjusting warm air, refer to 14

- Turn on warm air, refer to 16  
Switch warm air distributor to windscreen and side windows.
- OPEN NOZZLES — turn center tommy to the left.
- Adjust nozzle grid as required.

### 4 REAR WINDOW HEATER

(Pilot lamp, yellow)

The heater operates only with the ignition switched on.

- ON — Turn switch towards the right.
- OFF — Turn switch towards the left.





## HANDLING:

- Pull oil dipstick.
- Wipe off oil dipstick and measure oil level.
- We recommend filling up oil as soon as the oil level is approximately in the centre between MIN. and MAX.
- Oil volume between MIN. and MAX. 2.2 lit.

## REFILLING ENGINE OIL

- Open closing cap of filler pipe by turning towards the left.
- Fill in oil up to top mark of dipstick.
- Close cover of filler pipe by turning towards the right.

**WHICH KIND OF OIL** you should use is shown in the fuel, lubricants and coolants chart on page 53. The oil consumption is nothing to get excited about: it is between 0,13 and 0,18 lit. for each 60 miles (100 km). The oil dosing pump takes the oil to lubricate the engine.



**THE COOLANT LEVEL** should be checked occasionally, best when fueling. Do not forget, since the coolant is vital for the engine. The initial filling consists of a mixture of water and anti-freeze which guarantees frost protection up to approximately  $-13^{\circ}\text{F}$  ( $-26^{\circ}\text{C}$ ). The effectiveness of the coolant should, however, be measured with a gauge prior to the winter season. We recommend changing the coolant once a year. This is done best in the spring. A total of 9.5 lit. (5.9 lit. water and 3.6 AUDI NSU cooling concentrate) should be filled in. Make sure that only AUDI NSU cooling concentrate is used, since not all anti-freezes mix well.

**CAUTION:** Be sure that the cooling system is not filled to excess, since this might damage the closing cap. Be careful when the cooling system is hot.

**THE WINDSCREEN WASHER** provides clear visibility. The water container under the engine hood should be filled with water mixed with an antifreeze and detergent such as SWF Auto-Klarol (refer to page 53 fuel, lubricants and coolants chart). The spray nozzles of the windscreen washer are easily adjusted. They are inside the fresh air grid in front of the windscreen.

**NOTE:** The water should hit against the upper third of the windscreen. An anti-freeze should be added during the winter.

## HANDLING:

### CHECKING THE COOLANT

- Open closing cap on coolant container by turning towards the left. (Caution, when radiator is hot).
- Check coolant level. If required, fill up at filler hole up to mark.
- Close cap by turning to the right.

### FILLING UP WITH WATER FOR WINDSCREEN WASHER

- Open engine hood, the water container is in the engine compartment at the right.
- REFILLING — Pull off closing cap, fill up with water.
- Push back closing cap.
- Close engine hood.

### ADJUSTING THE SPRAY NOZZLES

- Insert needle in spray nozzle.
- Turn nozzle into desired position.

**THE BRAKE SYSTEM OF THE Ro 80** provides maximum safety! How? The Ro 80 has disc brakes on all four wheels and is provided with a dual-circuit brake system. Each brake circuit is constantly checked by a pilot lamp, which lights up red as soon as the brake fluid is at its minimum level. But this pilot lamp also lights up when you are pulling the hand brake with the ignition switched on. It is for the added purpose of constantly checking the pilot lamp for function.

Obviously, we also want to facilitate braking. For this purpose, a brake booster has been installed, which amplifies your pedal pressure several times. It is a well-known fact that an automobile with passengers reacts differently than an automobile which carries only the driver. Thanks to a built-in braking power regulator, the Ro 80 is not influenced by changing loads. Our tip: brake with your right-hand foot only! At least until you have become accustomed to your new car.



**NOTE:**

If one brake circuit fails, the brake pedal must be stepped on deeper and at increased pressure.

**VERY IMPORTANT:**

When the vehicle is parked, pull the hand brake and set the shift lever in parking position.

**CAUTION:**

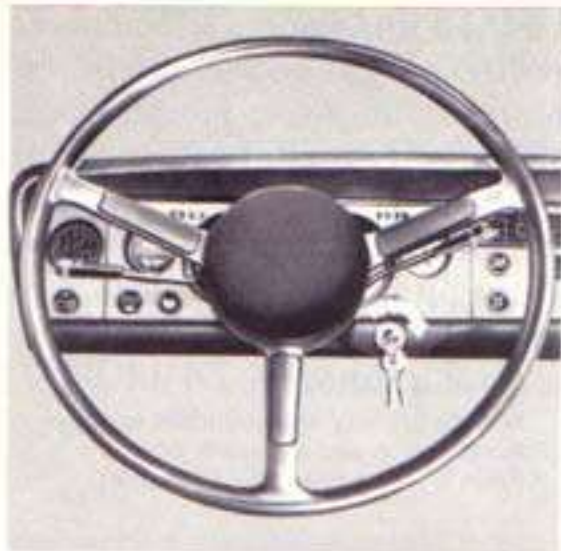
When there is insufficient brake fluid, the brake system is leaky. This implies danger. We recommend: See an AUDI NSU service station immediately for a check-up of the brake system.

**RUNNING IN OF THE Ro 80** is a pleasure. There are many methods of doing so and each driver will obviously consider his method the best. The 115 HP — rotary piston engine is very modest in its demands. During the initial 600 miles (1000 km) hardly any attention with regard to engine speed and maximum speed will be required. But you can drive your first mile already at high speed.

Nevertheless our recommendation for the first 600 miles (1000 km) is:

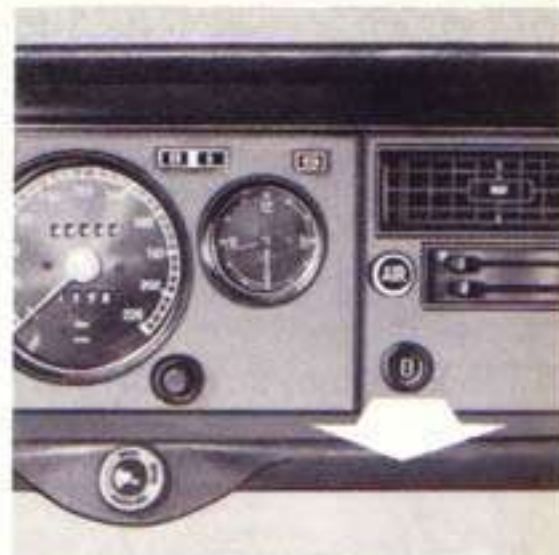
- Do not drive at full throttle.
- Check engine oil often, at each fuelling stop would be best.
- Do not drive beyond 5500 rpm or 100 mph (160 km/h).
- Panic braking should be avoided, to give brake linings a chance of developing their favorable wear and friction values.





- Release hand brake by raising hand brake lever slightly while simultaneously releasing the pressure on the locking button (brake pilot lamp, red, should extinguish).
- Keep vehicle stationary, with pedal brake, if required.
- Relieve gas pedal completely (idling speed).
- Engage driving range.
- Step slowly on gas pedal.

**YOU ARE MOVING OFF**



### NOTE:

With the driving range engaged, the unbraked vehicle will slowly start moving even when the gas pedal is not operated. The respective speed depends, of course, on the driving range and the engine speed.

This "creeping" is a characteristic of all vehicles equipped with a torque converter. You will quickly consider this an actual advantage, particularly when manoeuvring into a parking spot and when starting on crossings.



**CHANGING SPEEDS** on the Ro 80 is no problem at all! Because: No clutch is required, since this is done automatically. You can concentrate fully on the traffic situation. But since we are talking about changing gears, once again: your left foot is doing nothing whatsoever when changing gears, since there is no clutch pedal to step on. Look under **HANDLING**, how easy it is.

**FOR STOPPING** your Ro 80, two basically different situations must be observed:  
Are you stopping on traffic lights or crossings, or do you want to park the vehicle?

For both situations our recommendations are at the right.

**NOTE:** The clutch will disengage the moment you are touching the shift lever. Therefore, touch shift lever only when changing speeds.

## **HANDLING:**

### **CHANGING SPEEDS (SHIFTING)**

- Decelerate.  
Release gas pedal completely.
- Select the desired driving range (clutch will disengage automatically).
- Step on gas pedal.

### **STOPPING ON TRAFFIC LIGHTS AND CROSSINGS**

- Decelerate.
- Brake with right-hand foot until the vehicle stops.
- For moving off fast, select lower driving range, unless already engaged.

### **STOPPING FOR PARKING**

- Decelerate.
- Brake with right-hand foot until vehicle stops.
- Engage parking lock with shift lever.
- Switch off ignition.
- Pull hand brake.

**THE INSIDE MIRROR** shows its advantages best at night. Its mirror surface can be tilted and is therefore free of glare.

**BOTH FRONT VIZORS** can be turned as required. Their special feature: both vizors have a built-in make-up mirror. The mirror can, of course, be covered up in the left-hand sun vizor.

**THE INTERIOR LIGHTS** are free of glare and yet effective. Both lamps can be switched on and off independently of each other. Three switch positions are provided. For details refer to section "Handling".

**THE ASH TRAY** underneath the instrument panel is lighted. But there is no special switch. The ash tray light will be automatically switched on whenever the headlights are on and when you pull the ash tray out.

## HANDLING:

### GLARE-FREE INNER MIRROR

- **NORMAL POSITION** — Swing adjusting lever back.
- **GLARE PROTECTION** — Swing adjusting lever forward.

### SUN VIZORS

- Turn as required.

### INTERIOR LIGHTS, FRONT

(In mirror bracket)

- Move switch button towards the right: lamp will burn continuously.
- Move switch button towards the left: lamp will burn only if one of the front doors is open.
- Switch button in centre position: light is extinguished.

### INTERIOR LIGHTS, REAR

(above rear window)

- Move switch button upwards: light will burn continuously.
- Move switch knob downwards: light will burn only if one of the rear doors is opened.
- Switch button in centre position: light is extinguished.



## HANDLING:

### ASH TRAY IN FRONT

- **PULLING OUT** — Pull at bottom edge of ash tray.
- **EMPTYING** — Push holding spring down, remove ash tray.
- **INSERTING** — Insert ash tray in outer guide, spring will snap in automatically.



### ASH TRAY IN BACK

- **PULLING OUT** — Pull at top edge of ash tray.
- **EMPTYING** — Push ash tray downwards and remove.
- **INSERTING** — Place ash tray into bracket at the top and push into casing.



## **THE LUGGAGE COMPARTMENT OF THE**

**Ro 80** will be a particular pleasure, since its length, width and depth permit loading and unloading lots of luggage easily and in comfort. And here, too, the Ro 80 has something special. By swinging the back rest sections of the rear seat forward, the luggage compartment can be enlarged and equipment such as fishing rods and also skis can be taken along without the need of mounting special fixtures.

## **THE RATING PLATE, THE CHASSIS AND THE ENGINE NUMBER OF YOUR Ro 80**

are under the engine hood. You should know this when your car is registered, but also when crossing borders and during traffic inspections. Also the pertinent traffic authorities may wish to inspect the numbers.

## **HANDLING:**

### **LUGGAGE COMPARTMENT**

- **UNLOCKING** — Turn key half a turn towards the right.
- **OPENING** — Pull off key and push on button, lid will open automatically.
- **CLOSING** — Push lid down until the lock engages.
- **LOCKING** — Turn key for half a turn to the left.

### **RATING PLATE**

- Open engine hood.
- The rating plate is between the hood mechanism and the body edge.

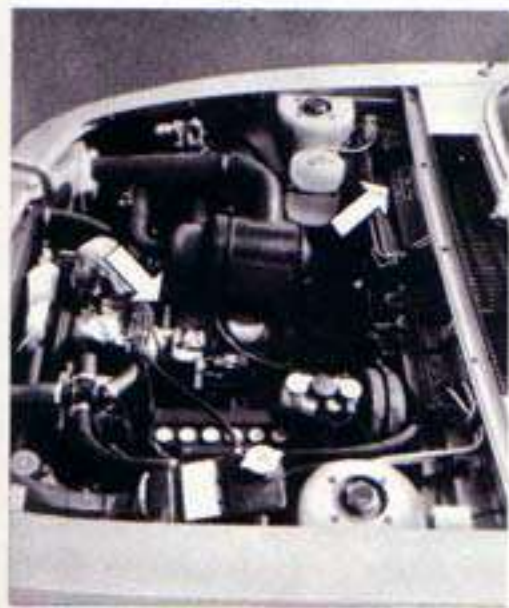
### **CHASSIS NUMBER**

- Open engine hood.
- The chassis number is next to the rating plate.

### **ENGINE NUMBER**

- Open engine hood.
- The engine number is punched into the centre engine housing.





## TECHNICAL DATA OF YOUR Ro 80

The **ENGINE** of the Ro 80 is a 115 HP ROTARY PISTON ENGINE.

This engine, which excels by quiet running and insensitivity against speeds, is provided with a FICHTEL & SACHS TORQUE CONVERTER, which establishes a hydraulic, rotary flexible connection between the engine and the gearbox.

**THE GEARBOX** has 3 fully-synchronized forward driving stages, 1 reversing stage, as well as one parking lock.

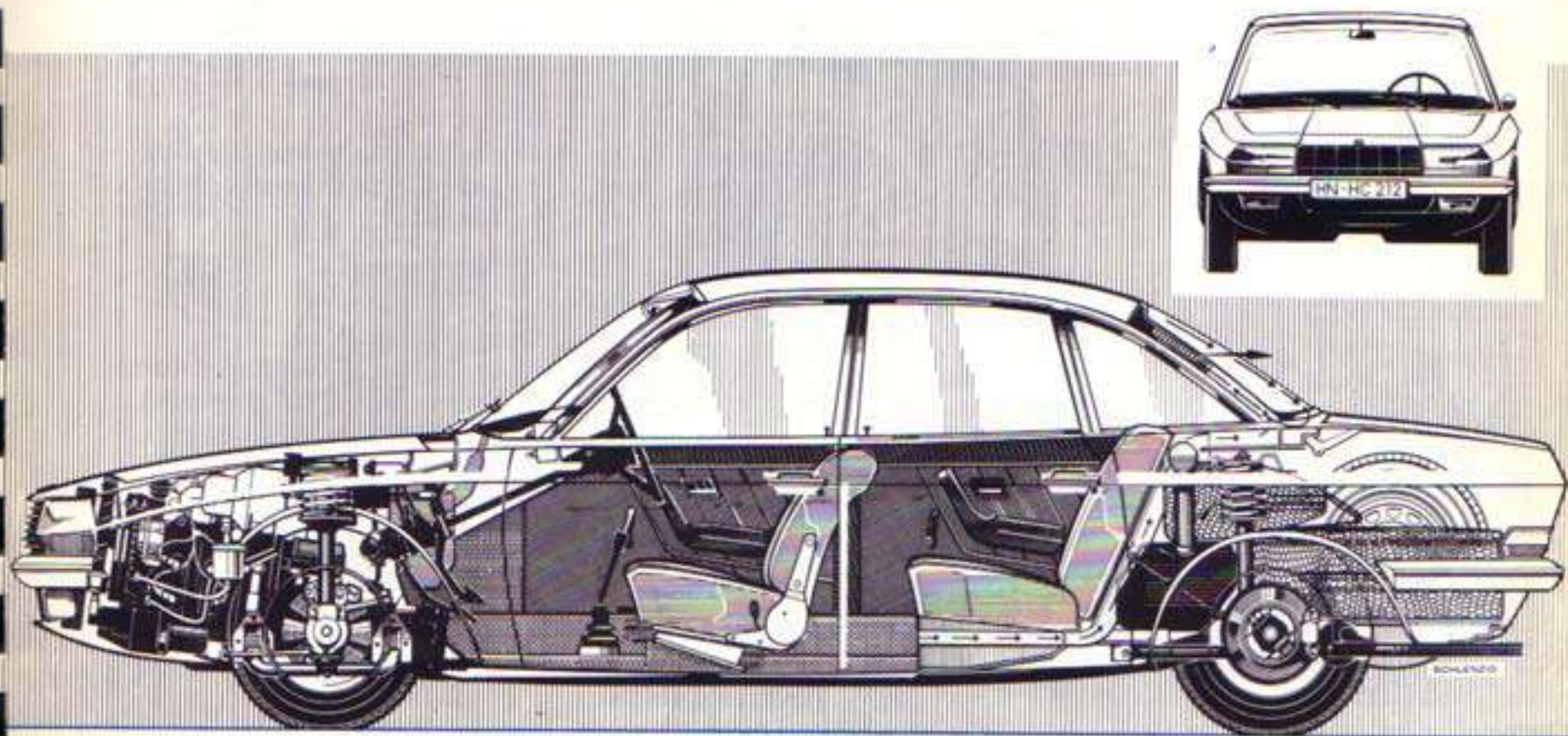
**THE WHEELS** are individually suspended. The drive is effected via HOMOCINETIC JOINTS which guarantee a uniform power flow at any steering position of the front wheels.

The design of the suspension provides a maximum of driving comfort and safety.

**STEERING** with the assistance of a steering booster (servo-steering) is particularly pleasant when driving in the city and across mountain passes.

For safety reasons, **THE BRAKE** is provided with two separate brake circuits. This brake system is additionally provided with a braking power booster, which increases the forces acting on the brake pedal several times. The rear axle is provided with a braking power compensating unit, which distributes the braking power to all four wheels uniformly under varying vehicle loads.

**THE HAND BRAKE** acts on separate brake drums at the rear wheels and thereby operates independently of the disc brakes.



## ENGINE

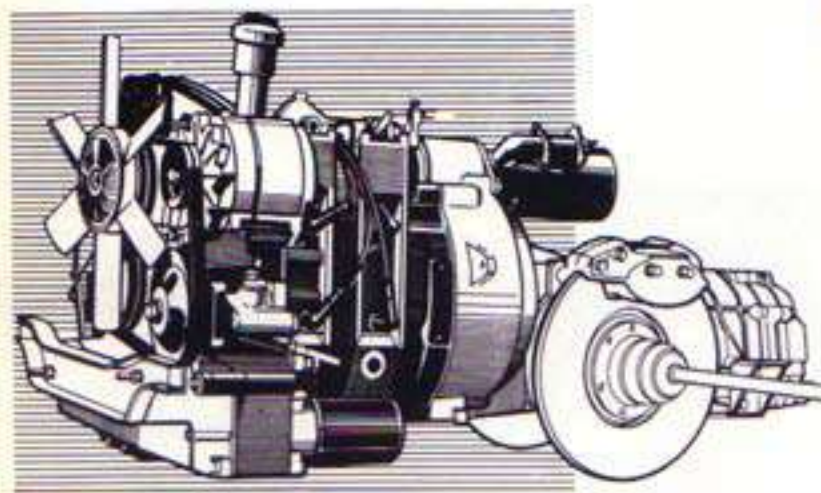
Type	115 HP rotary piston engine
Chamber volume	2 x 497 cc
Compression ratio	9.0 : 1
Output	115 HP/5500 rpm
Max. torque	16.2 kp/4500 rpm
Normal fuel consumption acc. to DIN 70030	11.2 lit/60 miles/100 km

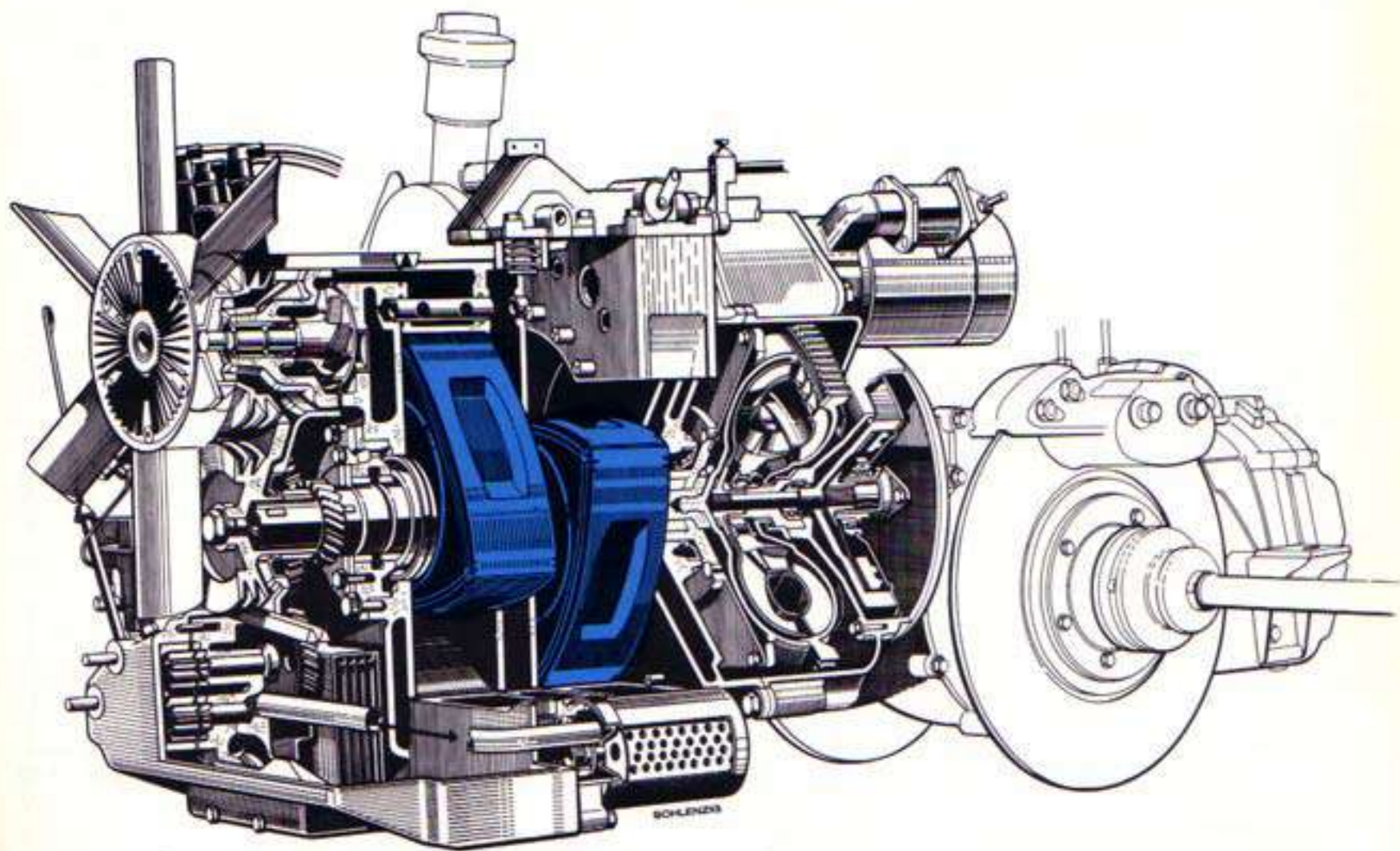
## CLUTCH

Type	Hydraulic Fichtel & Sachs torque converter with single disc dry clutch
Operation	Electro-pneumatically with Fichtel & Sachs servo-motor SM 125

## GEARBOX

Type	change gearbox, 3 baulked, fully synchronized forward stages, 1 reversing stage and parking lock
Gear reductions	
1st stage	1 : 2.056 (moving off, hill- climbing)
2nd stage	1 : 1.208 (moving off, city and suburban driving)
3rd stage	1 : 0.788 (fast driving and on speedways)
Reversing stage	1 : 2.105





## OIL CIRCULATING (engine)

Oil pump	One gear pump each for forced circulation lubrication and torque converter
Oil filter	Micro-change filter
Average oil consumption	0.13-0.18 lit. 60 miles (100 km)

## FUEL SYSTEM

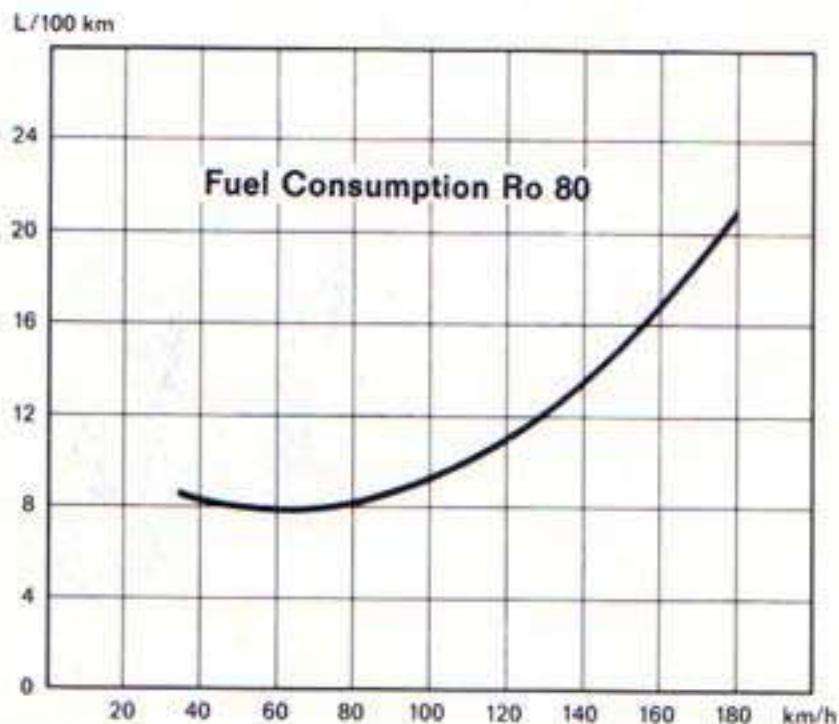
Fuel delivery	Diaphragm pump with filter
Fuel tank	83 lit. capacity, of which 18 lit. are in reserve
Filler pipe	Laterally at the rear, left
Fuel control	Electrical indication with separate tank reserve light (orange)

## CARBURETTOR

Design	2 Solex cross-draught two-phase carburetors	
Type	18/32 HHD	
Main nozzle	1st phase 100	2nd phase X 165
Full load enrichment	—	125
Idling speed nozzle	55	—
Idling speed air nozzle	140	—
Air correction nozzle	160	120
Venturi	15	27
Air filter	Damper-dry filter	

## FUEL CONSUMPTION

Operational consumption depends on individual driving style and circumstances. City traffic, bumper to bumper traffic and driving at full throttle will increase fuel consumption. The diagram below shows the fuel consumption in the 3rd driving range.



## OPERATIVE MATERIALS

Designation	Capacity	Brand	Described on page
<b>ENGINE OIL</b>			
INITIAL CAPACITY	7.6 litres	HD Oil SAE 10 W/30	80
CHANGE CAPACITY	4.4 litres	HD Oil SAE 10 W/40 HD Oil SAE 20 W/50 down to +14° F (—10° C) or in the winter HD SAE 20, in the summer HD SAE 30	80
DIFFERENCE BETWEEN MIN. AND MAX.	2.2 litres		30—32
GEAR OIL	2 litres	Hypoid gear oil SAE 90	82
ENGINE COOLING	9.5 litres	Water/anti-freeze protective mixture (5.9 litres of water, 3.6 litres of AUDI NSU cooling concentrate)	34, 76
FUEL	83 litres	Normal or super fuel 90 octane (Research method) minimum	30
FUEL RESERVE	18 litres	For approx. 60 miles (100 km) (warning lamp orange, fuel for approx. 25 miles (40 km))	22
BRAKE FLUID	485 cc	Blue ATE or LOCKHEED brake fluid	33
STEERING GEAR	1100 cc	AUDI NSU hydraulic oil	70
WINDSCREEN WASHER	2000 cc	Water mixed with anti-freeze-detergent (safe up to —25° C) such as SWF Autoklarol, VDO Antisilin with frost protection, Rex windscreen cleaner with frost protection	

## DRIVE

Type	Homokinetic joints
Reductions: gearbox/ differential wheel drive	1 : 4.857
Total reduction	
1st stage	1 : 9.984
2nd stage	1 : 5.869
3rd stage	1 : 3.827
Reverse stage	1 : 10.226

## STEERING

Design	Rack and pinion steering with ZF circulating oil servo- steering
Angle reduction	18.3 : 1
Dia. of track circle	11.1 m
Min. turning circle	11.8 m
Revolutions of steering wheel	3.7 revolutions from lock to lock

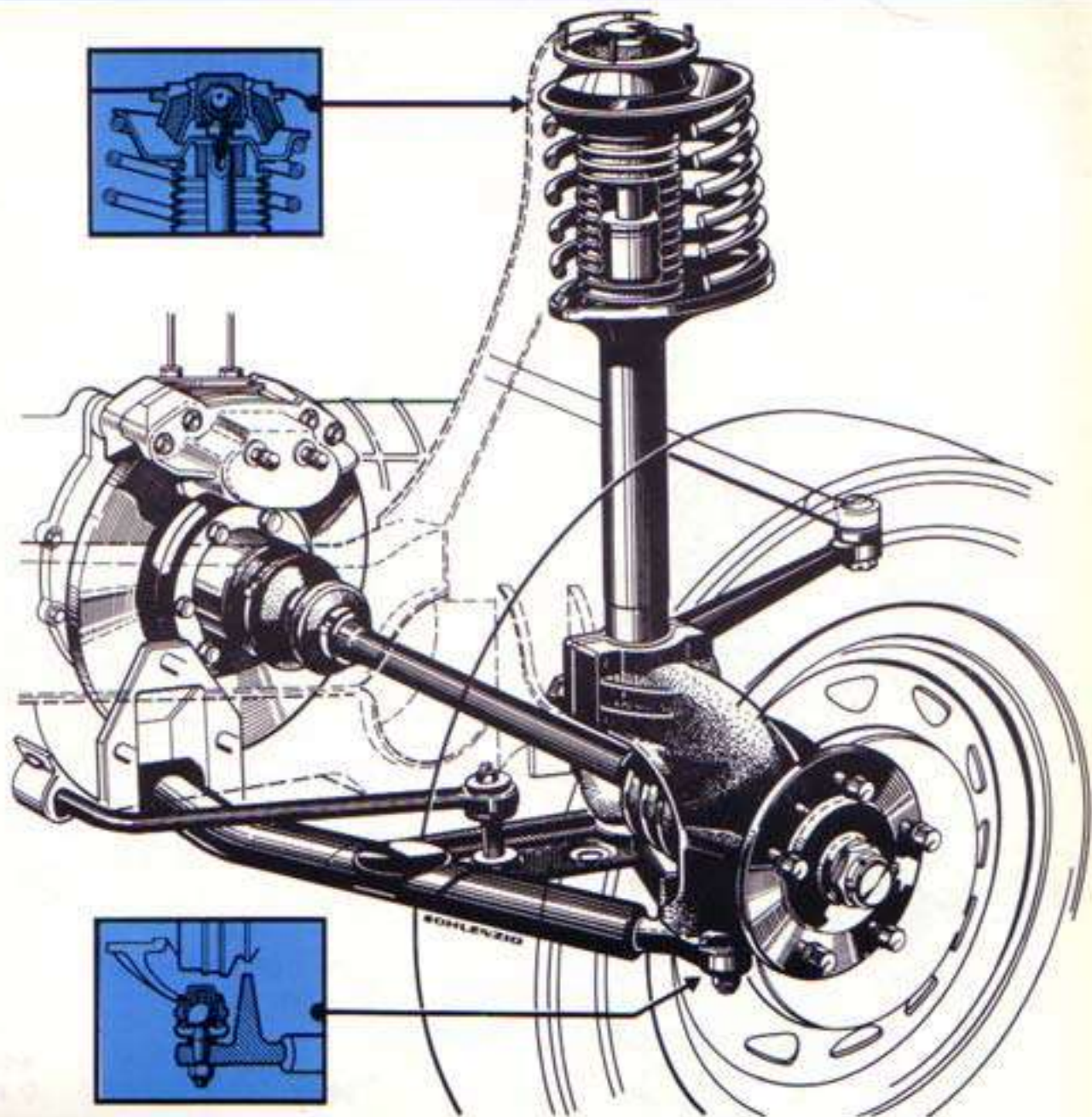
## FRONT AXLE

Design	Single wheel suspensions with wish-bones and McPherson spring struts
Suspension	Coil springs, rubber supple- mentary springs and cross stabilizer
Shock absorbers	Hydraulic telescoping shock absorbers
Wheel deflection, total	188 mm
Camber	30'
Caster	0 mm
Toe-in	0 mm
Inclination (KPI)	8° 30'

## WHEELS AND TIRES

Rims	5 J x 14 steel rims LH 1 B with internal centring Forged aluminum rims 5 J x 14 H-B
Tires	
Radial Tires (Belt Tires)	175 SR 14
Diagonal Tires	6.95/175 H 14 or 6.95/175 S (max. permissible speed 175 km/h)
M + S Radial Tires with and without spikes	175 SR 14
Tire pressure front	2.0 atü } from no-load up to
Tire pressure rear	1.7 atü } permissible total load + 0.2 atü for extended, fast driving
Tire pressure for trailer operation	at 1000 kp trailer load front 2.0 atü trailer load rear 2.5 atü at 1200 kp trailer load front 2.4 atü trailer load rear 2.8 atü





## BRAKES

### PEDAL BRAKE

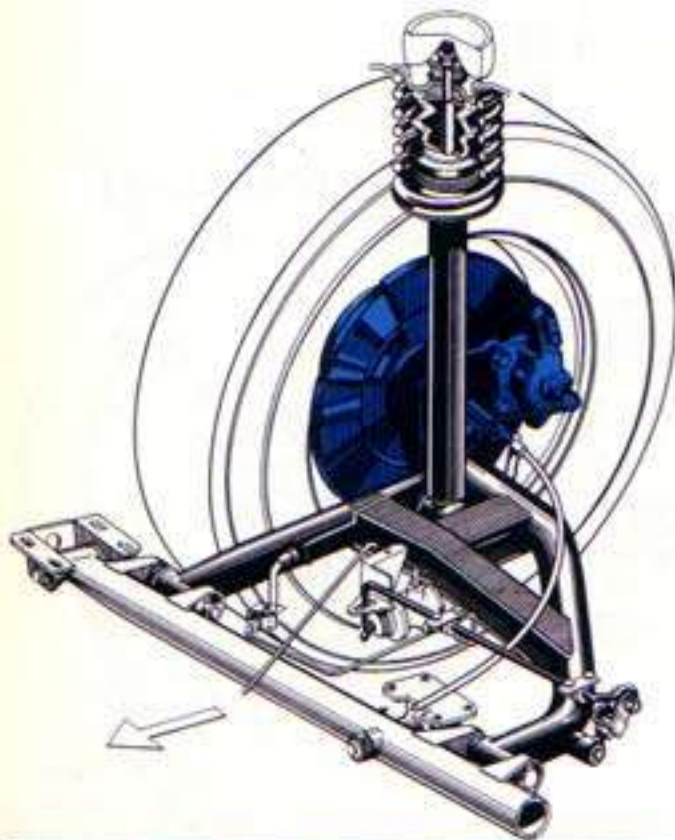
Design	4 disc brakes with brake power booster and load-dependent brake power regulator at rear axle. System ATE Dunlop.
Operation	Dual-circuit brake system 1st brake circuit acting on all 4 wheels. 2nd brake circuit acting on front wheels.
Brake front	Disc dia. 284 mm
Brake rear	Disc dia. 272.5 mm
Min. brake pad thickness	2 mm

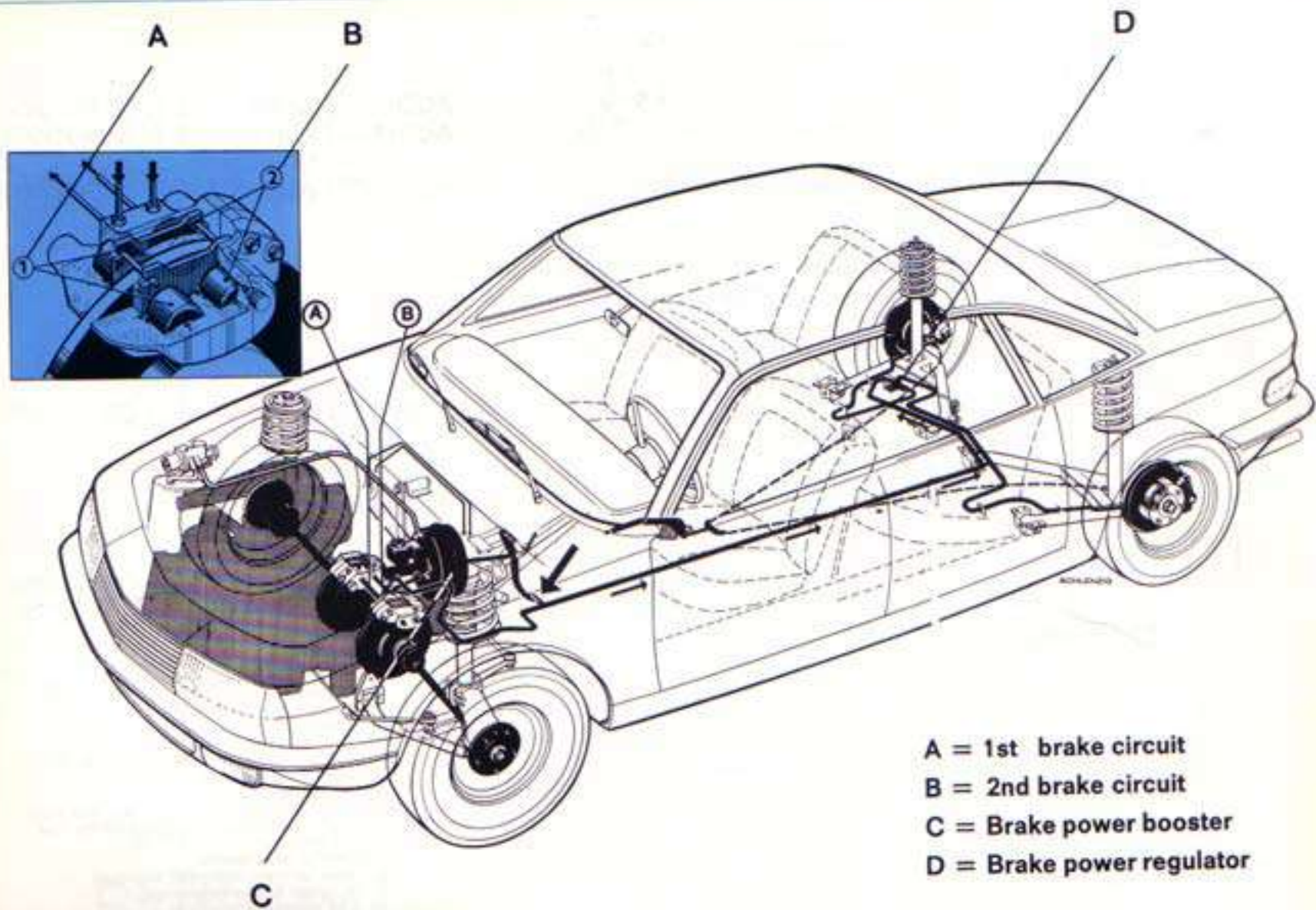
### HAND BRAKE

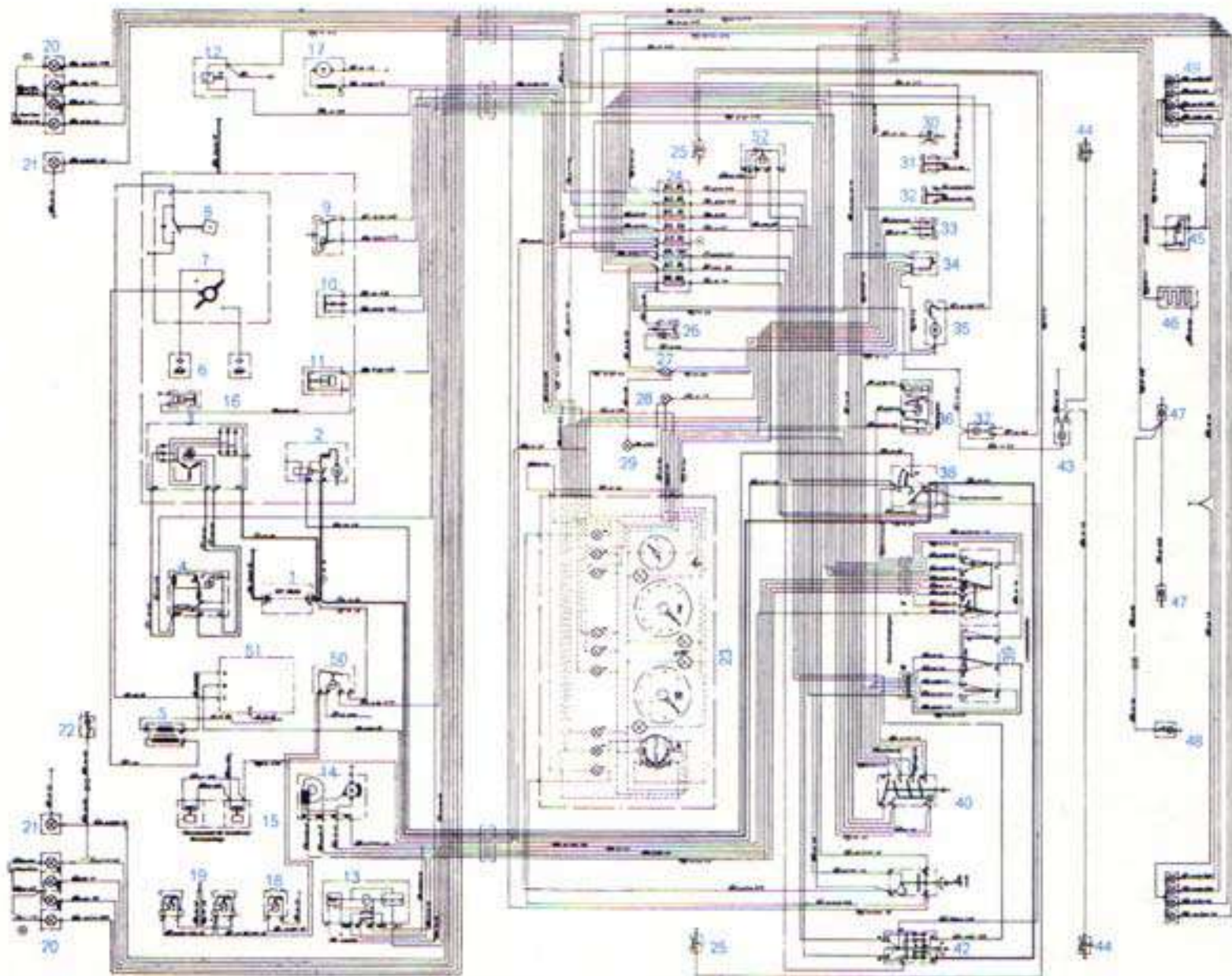
Design	Mechanical internal expanding brake, acting on rear wheels.
Brake drum	160 mm dia.
Shoe width	25 mm

### REAR AXLE

Design	Single-wheel suspension on control arm and cross member
Suspension	Coil springs and rubber supplementary springs
Shock absorber	Hydraulic telescoping shock absorber
Wheel deflection, total	257 mm
Camber	—20' with vehicle empty (—2° 20' at permissible total weight)
Toe-in	0 mm







**THE SERVICE WORK** on the Ro 80 should always be done at the specified mileage. Your workshop will then be able to recognize any faults early for proper repairs. This will increase your safety and will save costs. For all the service jobs and repairs, if required, the large AUDI NSU customer service organisation at home and abroad is at your disposal.

When buying the Ro 80 you will be given three booklets:

**The operating instructions**, which you are now reading.

**A service voucher booklet**, which tells you when an inspection or a service must be performed.

**A list of customer service stations** in which all Ro 80 service stations at home and in Europe, with their trained, expert personnel, are listed. If in spite of this availability of many thousands of AUDI NSU specialists you intend to care for your Ro 80 yourself or have someone else do it, we recommend reading the following pages. However, actual repairs should always be done by the AUDI NSU specialist.

**THE WINTER** imposes extra demands on automobiles and your Ro 80 should be prepared early. In most cases it is quite possible to "winterize" the vehicle within the scope of an inspection.

The following must be specially observed:

**Winter oil** for the engine, unless multi-grade oil is used.

Checking the **coolant** for effectiveness of anti-freeze.

Checking the **battery**.

Checking the **lights**.

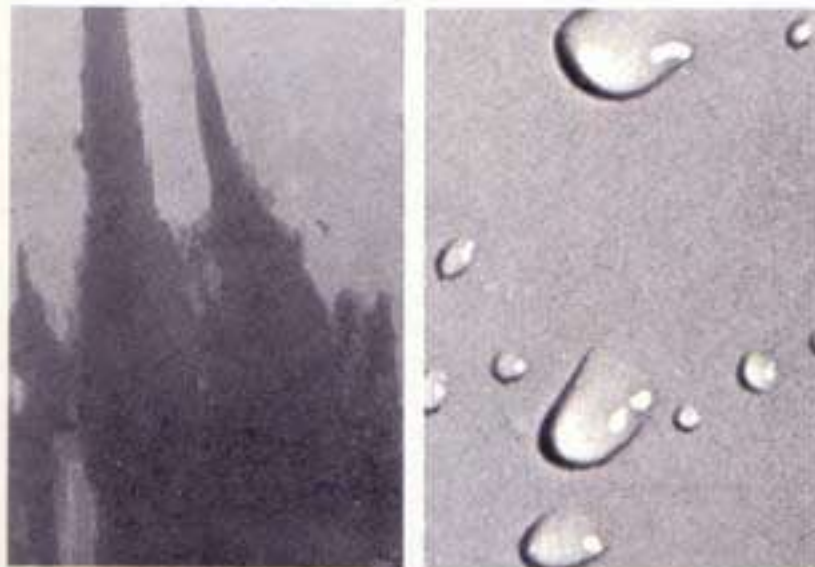
Checking the **windscreen wiper blades**.

Mixing anti-freeze into the **water of the windscreen washer**.

Mounting **winter tires**.

Treating the chrome parts with a suitable maintenance compound will be of advantage, particularly in the winter.





**THE RADIATOR GRIDS** should not be forgotten when the vehicle is cleaned thoroughly. Particularly in the summer, numerous insects will be caught and obstruct the air stream expected to flow past the radiator grids.

**Our recommendations:** Clean the radiator grids occasionally with compressed air.

**RUBBER PARTS** of the automobile (e. g. rubber sealing strips and window linings) are suitably rubbed with glycerine once a month. The rubber appreciates the treatment, it will remain flexible and will also always look well.

**DOOR WINDOW GUIDEWAYS** are best treated with talcum. The door panes are easier operated and the window guideways will have a longer life.

**POLISHING** is something else than preserving. Only decayed varnish requires polishing, to remove the upper layer and expose the still good coat underneath. The work is similar to preserving. Nevertheless, the instructions should be read. The difference between cared for and not cared for varnish is easily seen. On uncared for varnish the water will remain, but will be quickly repelled by cared for varnish.

**MINOR DAMAGE TO THE PAINTWORK** may occur on any motor vehicle. This has nothing to do with the quality of the varnish, but is simply and exclusively the result of environmental influences on the automobile. It is important to remove such damage before the appearance of rust. But there is no need to take your Ro 80 to a paint shop. Not at all! AUDI NSU has taken precautions by providing pertinent aids:

**COLOUR PENCILS AND  
VARNISH SPRAY CANS.**

Their use requires no special skills.

**NOTE:** Remove any formations of rust with abrasive paper prior to making any repairs.

**THE CHROME WORK** and all other polished metal parts should be treated with a suitable compound, if possible every 6 to 8 weeks. Particularly in the winter, when it is not the snow or ice, but the grit which might attack the unvarnished surfaces of your vehicle. When using chrome polish and preserving agents please observe the pertinent instructions accurately.

**NOTE:** Prior to using such agents, wash your automobile well.

## HANDLING:

### MINOR DAMAGE

- can be repaired with a colour pencil. AUDI NSU has all original colours in stock (part No. 040 99 00 905).

### SLIGHTLY BIGGER DAMAGE

- is easily repaired using an AUDINSU varnish spray can (part No. 040 99 00 909).



**LUBRICATING, OILING AND GREASING** are required even on an automobile like the Ro 80, which requires such a minimum of service. But there are no lube nipples.

This has nothing to do with economics, but is the result of constructive thinking and advanced engineering.

The door locks, the door hinges, the latches, and the seat rails are parts of the automobile which are not greased or lubricated automatically. This is why they should be occasionally serviced. And there is nothing to lose, if the contents of the oil tank for the servo steering are checked together with the service jobs. For refilling, only use AUDI NSU hydraulic oil.

## **HANDLING:**

### **DOOR LOCKS**

- Open door.
- Pour oil — mixed with graphite will be best — into cylinder lock.
- Or dip key into graphite and turn several times in lock.

### **DOOR HINGES**

- Open door.
- Remove dirt and dust.
- Lubricate hinge pins.

### **LATCHES**

- Open door.
- Lubricate swivel pins of door locks lightly.
- Grease latches lightly with graphite on slide surfaces.

### **SEAT RAILS**

- Push front seats completely forward.
- Grease seat rails lightly.
- Move seats several times back and forth.

### **SERVO-STEERING**

- Open engine hood.
- Loosen wing nut of oil tank, Remove cover.
- If required, fill up with oil (refer to chart of operative materials on page 53).
- Oil should be up to mark.
- Close cover, see that seal is well seated.
- Tighten ring nut by hand.

**THE TIRES** of your Ro 80 bear the designation 175/SR 14 and are supplied together with the inner tube. The tires were selected according to the motto "Safety first".

GETAWAY  
MAXIMUM SPEED  
GRIP  
WEAR RESISTANCE.

All these factors were taken into account and the best selections made. The life of the tire is also important. It should be as high as possible. The Ro 80 driver can, of course, add his share, too.

How? Check the tire pressure often and observe our instructions on interchanging the wheels in the course of the service and inspection work (page 72).

### **TIRE PRESSURES?**

Here they are:

front: 2.0 atü | from no-load to permissible  
rear: 1.7 atü | total load for all 4 tires  
+ 0.2 atü for extended fast driving

For tire pressure during trailer operation refer to page 54.

**IN THE WINTER** the tires should be matched to road conditions. The pertinent winter tires are available. If used, they should be mounted on all 4 wheels, and even better on all

5 wheels. M+S tires are of advantage when driving on sludge and soft snow, while M+SE tires (with spikes) have additional good driving characteristics on black ice and on pack snow.

When using M+S or M+SE tires, the speed should not exceed 80 mph (130 km/h).

### **NOTE:**

Radial tires are considered M+S tires. M+SE tires must be run in at moderate speed for approximately 180 miles (300 km).

**SNOW CHAINS** are required on deep, freshly fallen snow. — when travelling across mountain passes they are legally required. What about their attachment? Accurate instructions are included with each set of chains, which you can buy from your AUDI NSU dealer.

Snow chains reduce the permissible maximum speed still further than specified for M+S or M+SE tires. Please note the instructions of snow chain manufacturers.

### **NOTE:**

Contrary to winter tires, snow chains need be applied only on the front wheels.

**THE SPARE WHEEL AND THE TOOLS** are in the luggage compartment. Replacing a wheel is child's play, since AUDI NSU supplies the right kind of tools. The work is easy, even for the soft hands of a lady. The floor plate of the body has at the side, in front and at the rear, one recess each for positioning the vehicle jack. Be sure to follow instructions, since otherwise you will not only damage the body of your Ro 80, but there is also the danger that the vehicle will slip and you will be injured yourself. No one will know, where a tire will "brethe his last". It usually happens at the most unsuitable moment and at the most impossible spot. Therefore, our recommendations: On uneven ground support the jack in such a manner that its base is always horizontal. Be sure to do so, because it is extremely important.

**NOTE:** Vehicles with aluminum rims (optional) are provided with an assembly bolt among the service tools to facilitate changing wheels.

**NOTE:** After changing a tire, do not forget to have the faulty wheel repaired and balanced at the next workshop.

## HANDLING:

### CHANGING A TIRE

- Pull hand brake.
- Engage parking lock.
- Open luggage compartment.
- Remove rubber strap.
- Take spare wheel out of luggage compartment.
- The tools can now be taken out.
- Push off wheel cap with assembly lever. Hold wheel cap tight, since dropping it might damage the chrome plating.
- Slightly loosen wheel bolts.
- Position vehicle jack and make sure that the large surface of the jack base is horizontal in relation to the ground.
- Jack up vehicle.
- Remove wheel bolts completely.
- Change the wheel, tighten the wheel bolts.
- Lower the vehicle.
- Tighten wheel bolts crosswise.
- Attach wheel cap and fasten all round by slight blows with your hand against high edge.
- Put defective wheel and tools into luggage compartment.

**THE AIR FILTER** is a DAMPER-DRY FILTER. The filter element must be cleaned every 6000 miles (10 000 km) or replaced, if required. During extended business or holiday trips the vehicle will often travel across dusty roads. The damper dry filter will keep dust and sand away from the carburettor, since the latter requires clean air. But an intermediate cleaning may very well be required. This is suitably done in an AUDI NSU workshop. They will not only clean the filter cartridge, but will also check for damage. Use the experience of AUDI NSU specialists for your benefit.

**NOTE:** Often, simply knocking the filter cartridge against the back of your hand will be sufficient for cleaning.

**THE VEE-BELTS** are driving auxiliary units such as the generator, the fan, the hydraulic pump and the water pump. To protect these units against failure, and the engine against suffering damage, the Vee-belts should be checked occasionally, including their tension. This can be easily done during the regular inspections. But an additional check-up, for example while checking up fuel, will not do any harm.

## HANDLING:

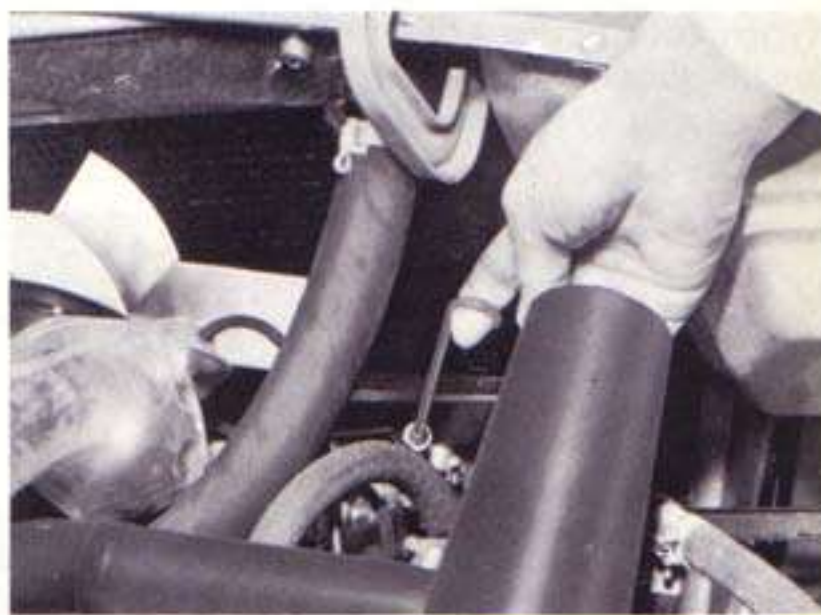
### CLEANING THE AIR FILTER

- Open the engine hood.
- Raise and thereby loosen the clamps on the filter housing.
- Remove filter element.
- Blow out filter element.
- Insert filter element.
- Close filter housing.

**CAUTION:** The air pressure should not exceed 5 atü (72 psi)

### CHECKING THE VEE-BELTS

- Pull out ignition key.
- Open the engine hood.
- Check condition of Vee-belts.
- Press down on Vee-belts with thumb. Under slight pressure the Vee-belts should bend down not more than 5 mm.
- TIGHTENING — Loosen generator attachment. Swing generator outwards to the extent of providing the required Vee-belt tension.
- Tighten generator attachment.



## THE GEARBOX AND DIFFERENTIAL OIL

should be changed every 12000 miles (20000 km). With regard to capacities and quality, refer to the table "Operative materials" on page 53.

**THE CARBURETTOR SYSTEM** should as much as possible be serviced by a specialist. A list of the number of nozzles is on page 52. But anyone, compelled to clean the carburettor or even only one nozzle himself, should watch out for maximum cleanliness during assembly. Even the smallest foreign body may clog the nozzle holes, which will result in operating trouble.

The AUDI NSU specialist has the required synchrotester for adjusting the carburettor at his disposal, because only such an instrument will permit uniform matching of both carburettors.

**CAUTION:** When removing a carburettor, be sure to switch off the ignition.

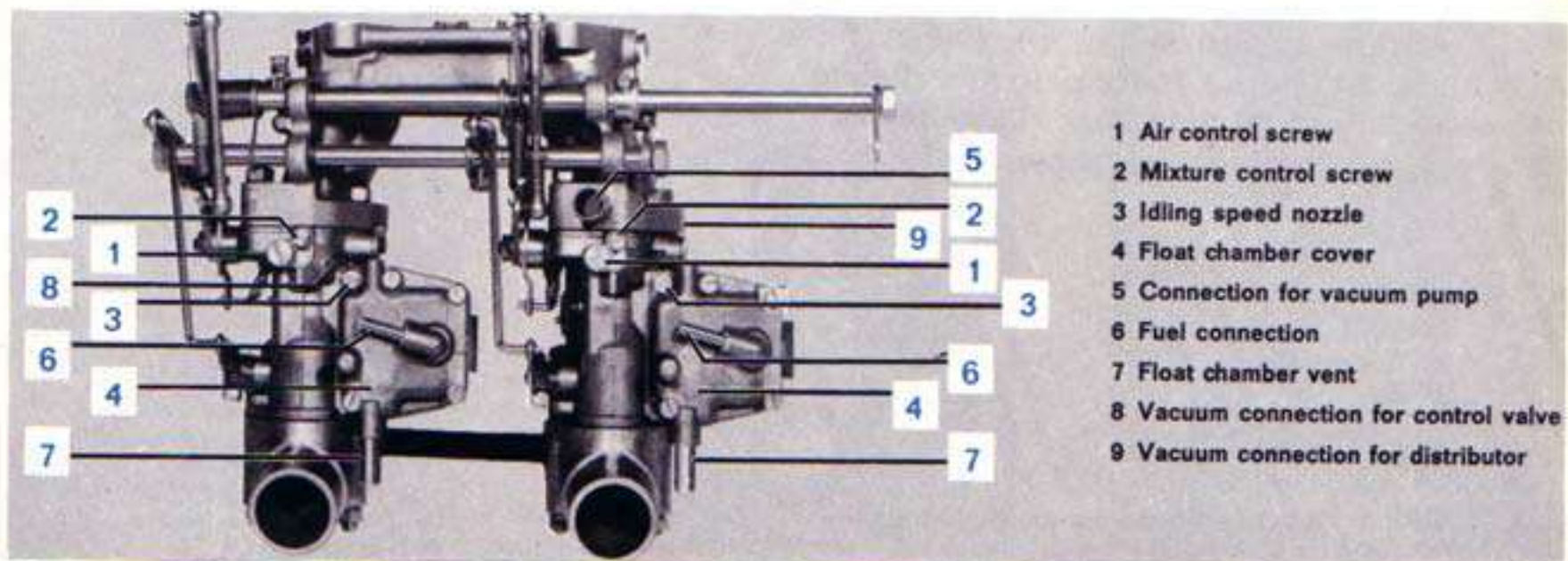
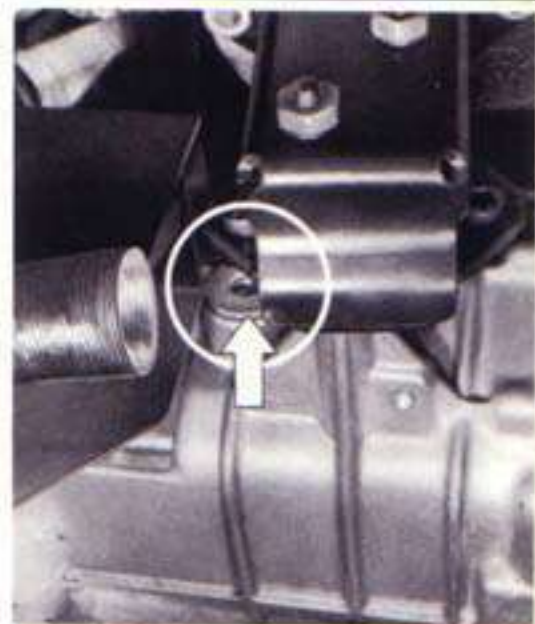
## HANDLING:

### CHANGING THE GEARBOX AND DIFFERENTIAL OIL

- For changing oil, the gearbox must be warm.
- Remove both drain plugs, i. e. 1 screw, width between flats 12 mm, on head of housing, 1 Allen screw 10 mm hex. socket at the right of the housing.
- Remove filler plug — also control plug — at the left of gearbox housing.
- When the old oil has been drained off, attach drain plugs with new seals.
- Fill in gear oil.
- Mount filler screw and new sealing ring.

### ADJUSTING THE CARBURETTOR

- Open the engine hood.
- Remove damper-dry filter.
- Close air control and mixture control screws by turning to the right.
- Open both adjusting screws by 2 turns.
- Raise engine speed to 1100 rpm by additional adjusting of air control screw.
- Adjust engine to smooth running by means of mixture control screws.
- Match both carburettors with synchrotester. The measuring piston should each move at the same height.



- 1 Air control screw
- 2 Mixture control screw
- 3 Idling speed nozzle
- 4 Float chamber cover
- 5 Connection for vacuum pump
- 6 Fuel connection
- 7 Float chamber vent
- 8 Vacuum connection for control valve
- 9 Vacuum connection for distributor

**THE HALOGEN HEADLIGHTS** of the Ro 80 offer increased driving safety at night. The clearance lights as well as the low beam and high beam headlights are located separately. Changing burnt bulbs is no problem when having spare bulbs. We recommend taking a spare bulb box along, which is available from your AUDI NSU dealer. The bulb chart on page 60 shows where the respective lamp belongs. The replacing of the individual lamps has been described in detail on purpose, since it may have to be done without a specialist present. This is why we are recommending once again: Take a spare bulb box along on extended trips. Experienced drivers have always done so. And they also know that prior to replacing a bulb, the ignition and the pertinent switch must be switched off.

**CAUTION:** No matter which bulbs are affected, they should always be handled with a clean cloth or tissue paper. Your finger print on the glass would evaporate and spoil the reflector. When fitting the covers for the headlights and fog lamps special attention must be paid to the rubber seals.

## HANDLING:

### CHANGING THE BULBS

- Loosen wing nut of headlight closing cover in engine compartment.
- Remove closing cover.

### CLEARANCE LIGHTS

- Pull out bulb socket.
- Remove defective bulb by pressing and turning to the left.

### LOW BEAM

- Loosen retaining clip for bulb.
- Remove defective bulb and detach plug connection.

### HIGH BEAM

- Press off tension clip of lamp socket
- Remove socket with bulbs.
- Loosen retaining clip for bulb.
- Remove defective bulb and detach plug connection.

### FOG LAMPS

- Pull off closing cover.
- Press off tension clip of lamp socket.
- Remove lamp socket with bulb.
- Press retaining clip to outside.
- Remove defective bulb and detach plug connection.





## HANDLING:

### TAIL LIGHTS

- Open luggage compartment.
- Loosen attachment of tail light housing (2 knurled nuts).
- Pull out complete lamp housing.
- Loosen plug socket of respective lamp by turning to the left.
- Replace defective bulb.
- Attach plug socket by turning to the right.
- Attach lamp housing, making sure that rubber seal is well seated.
- Tighten knurled nut manually.



### BLINKER LIGHTS

- FRONT — Open engine hood.
- Pull off closing cover of headlights after loosening the wing nut.
- Pull socket for blinker light off below.
- Replace defective bulb.
- Insert lamp socket with bulb into headlight/blinker housing top, pushing at the bottom.
- Attach closing cover, watch out for good seat of seal and tighten wing nut.
- REAR — Refer to tail lights.
- Replace defective bulb after disassembling the lamp housing.

