V.A.G Service. Training.

V·A·G

# Transporter

## with water-cooled Boxer engine.

## Construction and Operation.

## Self Study Programme.

# Transporter


The new Transporter is equipped as required, with one of two water-cooled boxer engines which have varying outputs.

1.9 ltr. boxer engine with 44 kW (60 bhp)

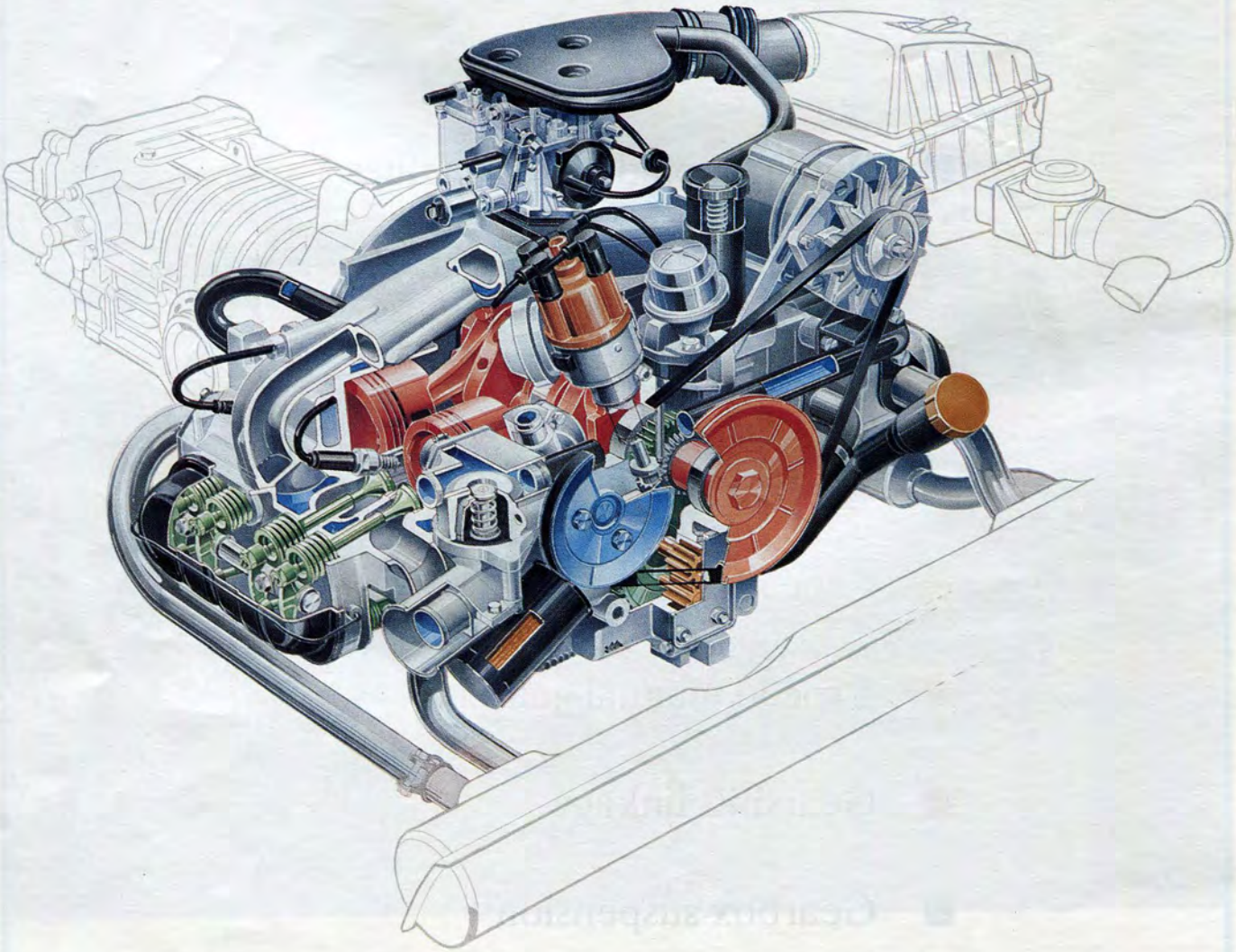
1.9 ltr. boxer engine with 57 kW (78 bhp)

In addition to this, there is a heavy duty 4 speed manual gearbox with modified reverse gear.
Also available is a 5 speed manual gearbox with synchronised first and reverse gears.

# Index

# Engine

The water-cooled boxer engines are a further development of the air-cooled versions.
In carrying out this development the requirements for higher output, driving comfort, brought about by improved running smoothness, and reduced fuel consumption have been attained.



| Technical data | | 44 kW | 57 kW |
|---|---|---|---|
| Capacity | $cm^3$ | 1915 | 1915 |
| Bore | mm ø | 94 | 94 |
| Stroke | mm | 69 | 69 |
| No. of cylinders | | 4 | 4 |
| Compression ratio | | 1 : 8,6 | 1 : 8,6 |
| Output | kW/min | 44/3700 | 57/4600 |
| Torque | Nm/min | 140/2200 | 141/2600 |

The higher output of the water-cooled boxer engines is attained by:

- Higher compression ratio giving improved efficency
- Reduced internal losses due to the discontinuance of air-cooling

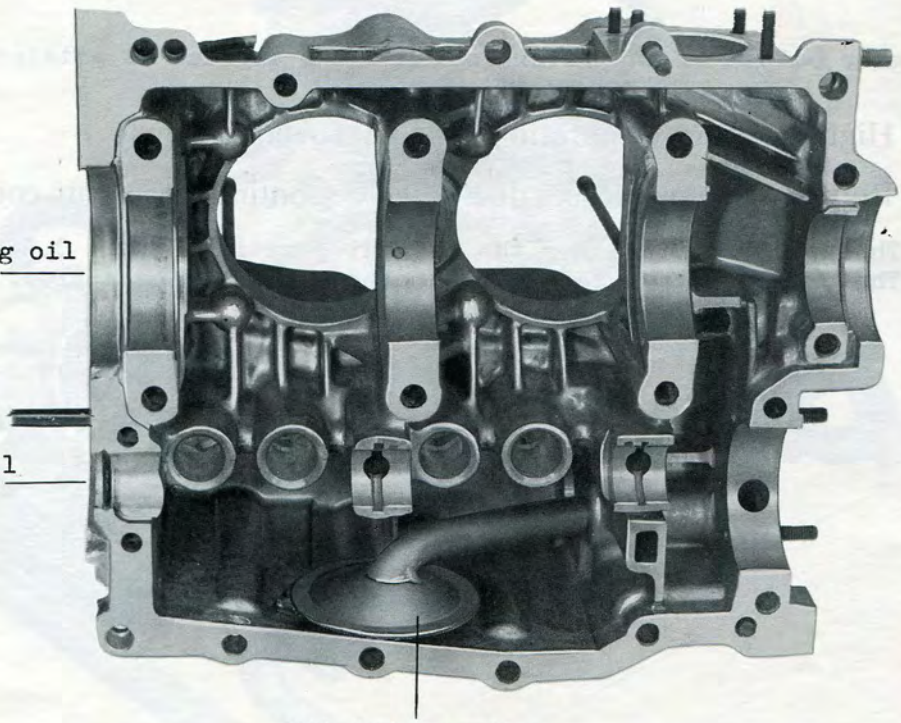
The power required for the coolant pump is approx. 0.5 kW.
The cooling fan for the air-cooled engine takes approx. 2.5 kW.

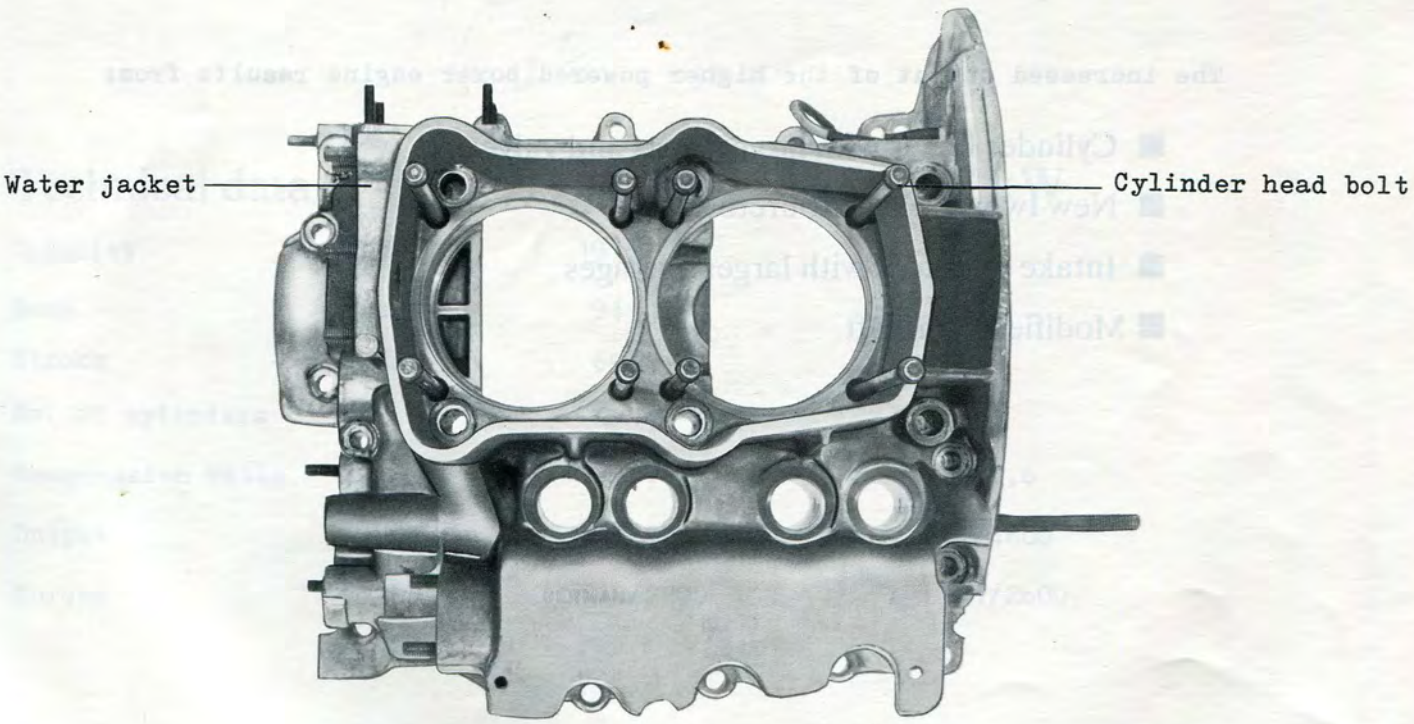
The increased output of the higher powered boxer engine results from:

- Cylinder heads with larger ports and valves
- New twin choke carburetor
- Intake manifold with larger passages
- Modified camshaft

# Crankcase

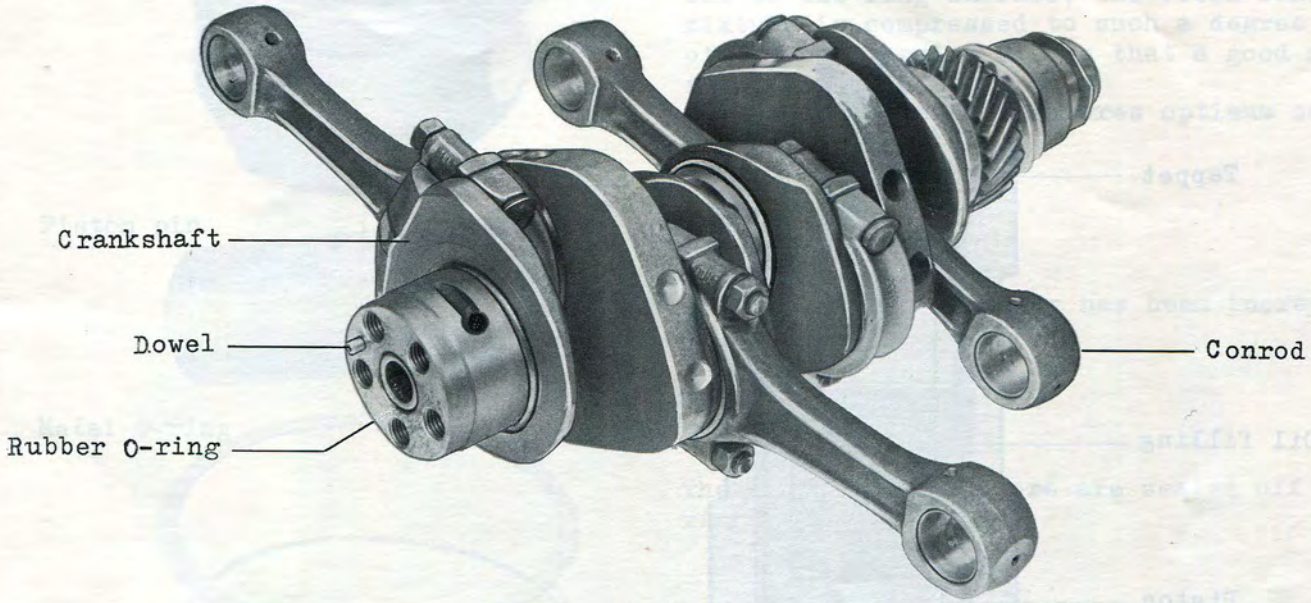
The crankcase is manufactured from an aluminium alloy. The water jacket is an integral casting.
The oil strainer is set into the housing and secured with a bolt. It is a component part of the crankcase.

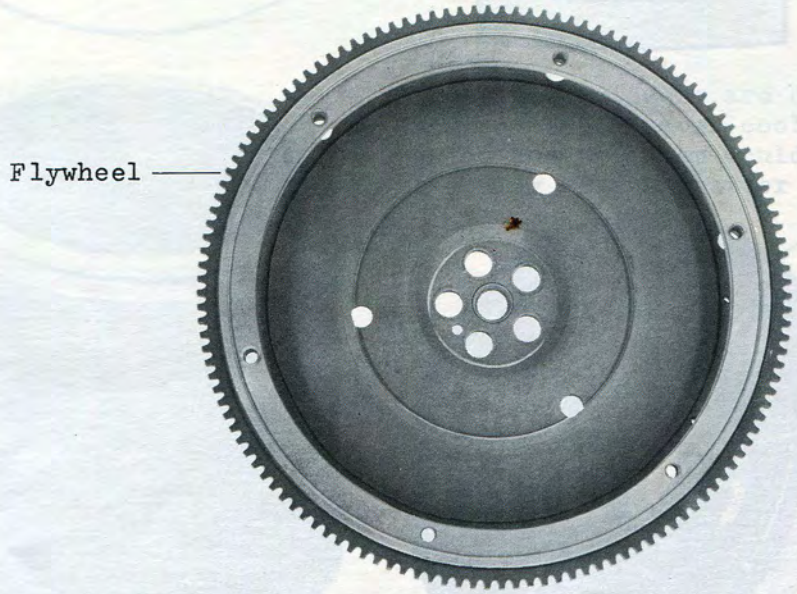


# Crankshaft group

The crankshaft group comprising crankshaft and conrods are improved standard parts.



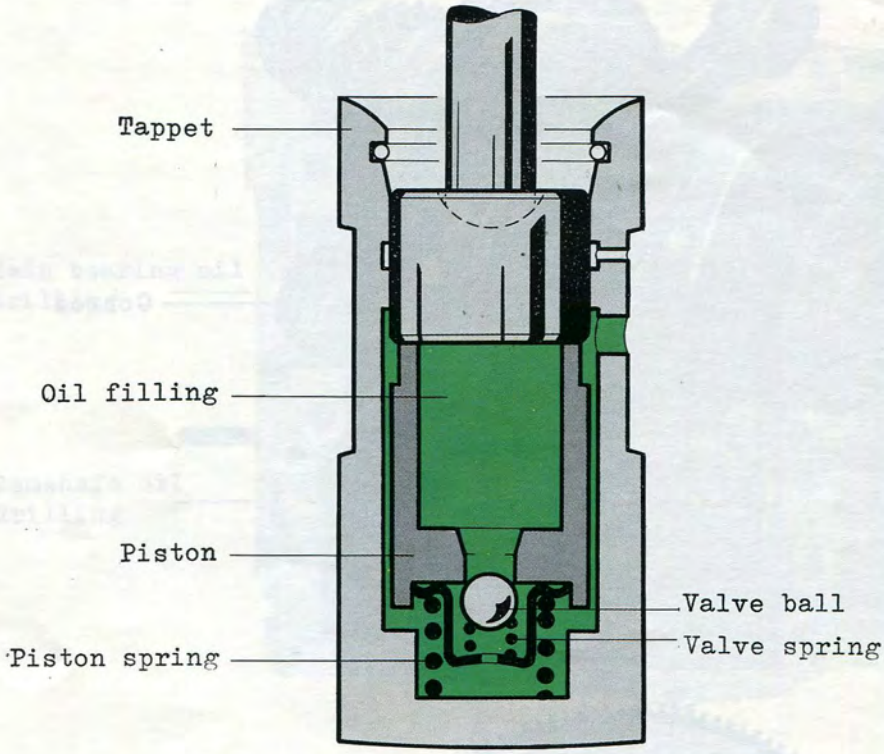

The flywheel is located on the crankshaft with a dowel and secured with 5 bolts. The rubber O-ring seals off between the crankshaft and flywheel.

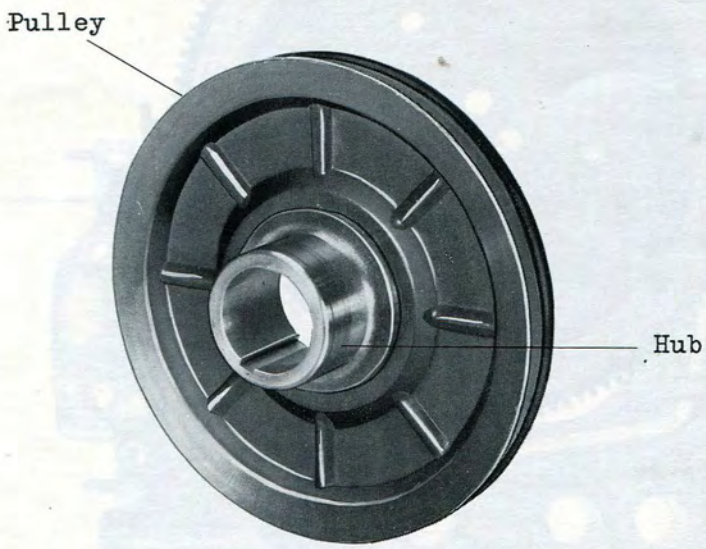
The clutch has a diameter of 228 mm and is designed to suit the increased engine output.

# Hydraulic tappet

The hydraulic tappets have been adopted for operating the valve gear. This greatly improves the quietness in operation.

The camshaft is the same design as previously. The valve timing has been adapted to the new engine requirements.




The vee belt pulley hub is smooth and sealing is taken care of by an O-ring in the crankcase.

# Piston and cylinder

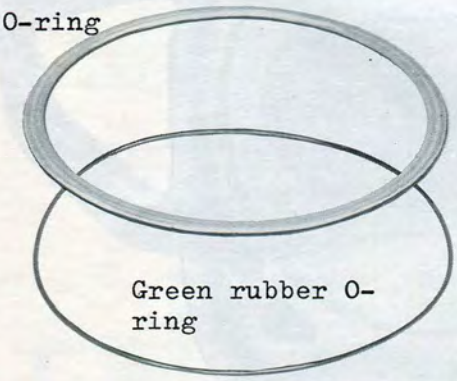
Piston

The piston crowns have been modified so that the combustion chamber is partially in the crown itself.
Due to the ring surface, the fresh combustion mixture is compressed to such a degree at the end of the compression stroke that a good swirl effect is attained.
This swirling effect ensures optimum combustion.

Piston pin

The piston pin diameter has been increased to 24 mm.

Metal O-ring




The combustion chambers are sealed off by metal O-rings.

Cylinder liner


The cylinder liners are of cast iron.
Because of the water-cooling the clearance between piston and cylinder could be reduced slightly thus attaining an even better degree of running quietness.

At the top of the cylinder liner there is a circumferential groove in which the thinner green rubber O-ring is fitted.

A black rubber O-ring of approx. 2 mm diameter thickness seals off the liner to crankcase.

When repairs are carried out the O-rings must always be renewed.

# Cylinder head

Coolant flows through the cylinder head.
The outer sealing between the cylinder head and the crankcase water jacket is taken care of by a U-shaped rubber seal.

Water jacket sealing surface

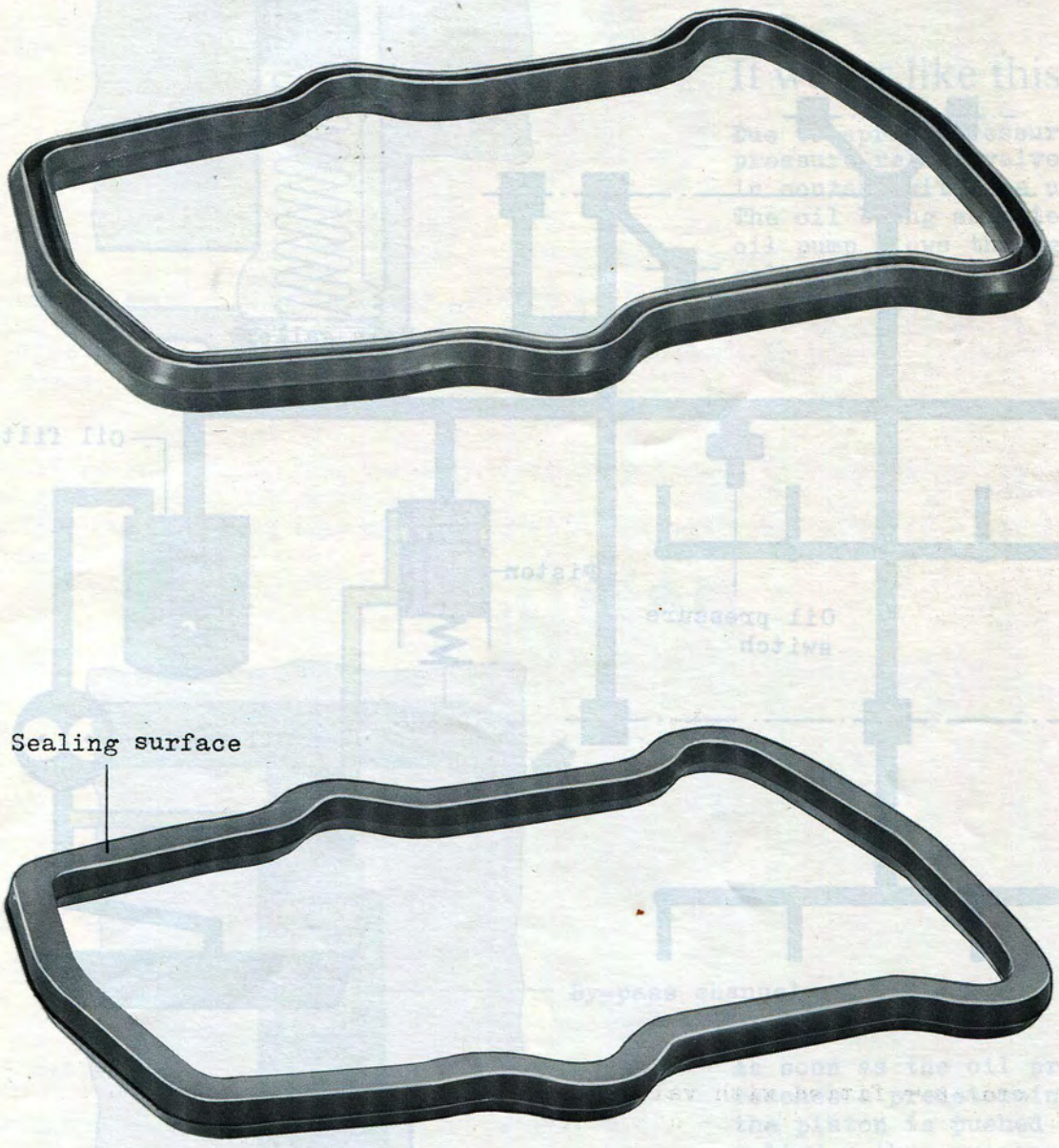
The cylinder heads are fitted with valves of varying sizes. The inlet and exhaust ports therefore also have different diameters:

| Engine | Inlet valve mm ø | Exhaust valve mm ø |
|---|---|---|
| 44 kW | 35.5 | 30.0 |
| 57 kW | 40.0 | 34.0 |

Attention must be paid to these differences when carrying out repairs.

This U-shaped seal is mounted on the water jacket wall. When the cylinder head is fitted the rubber seal is squeezed together thus forming a seal, and at the same time it balances out the manufacturing tolerances between the component parts.

Water jacket seal

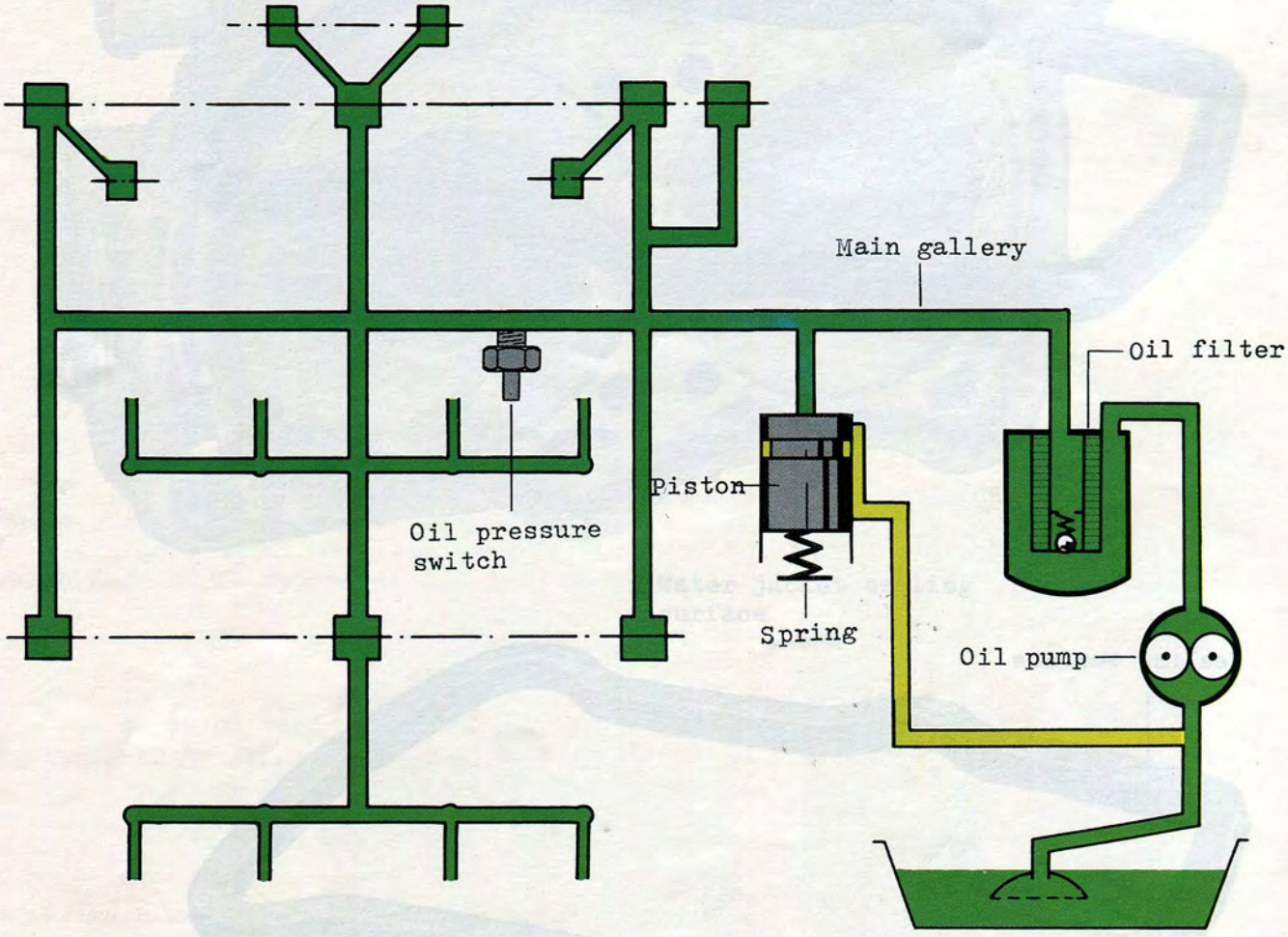


# Oil circuit

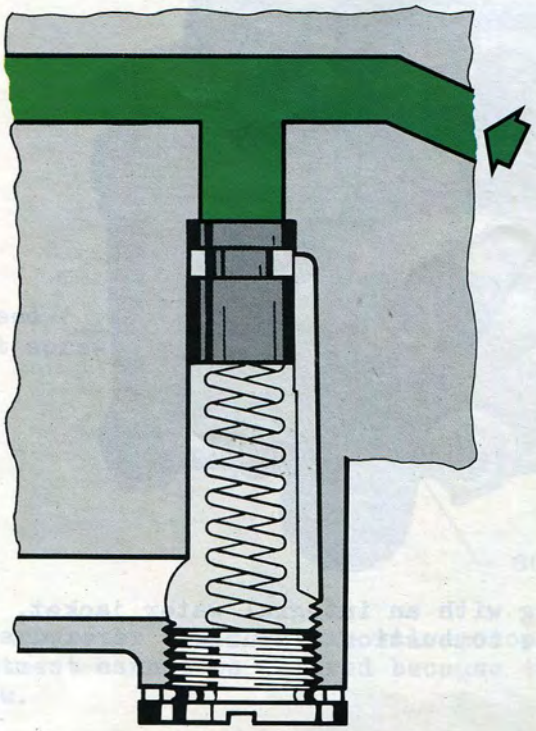
## It works like this:

The oil flows direct from the oil filter to the main oil gallery and from there to the individual lubication points.

The oil pressure switch is located in the left hand half of the crankcase and is in direct contact with the main oil gallery.

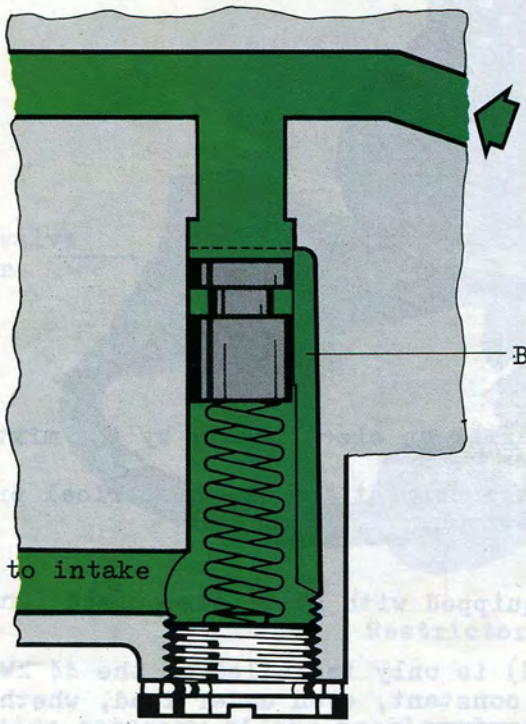


# Pressure relief valve



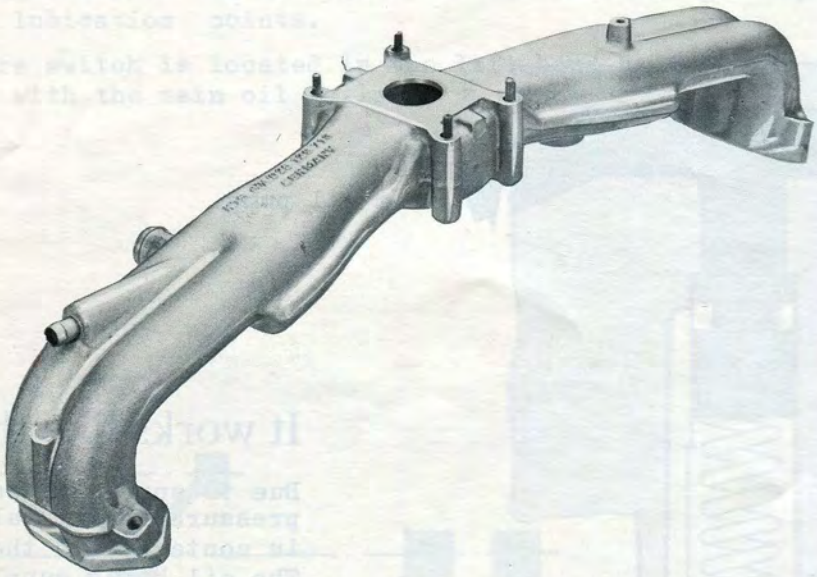

## It works like this:

Due to spring pressure, the pressure relief valve piston is in contact with the upper stop. The oil being supplied from the oil pump flows through the main gallery to the individual lubication locations.




As soon as the oil pressure reaches a predetermined figure the piston is pushed down its cylinder thus overcoming the spring pressure. This piston movement opens the by-pass channel so that the "excess pressure" can escape into the cavity behind the cylinder wall.
From here the oil drains off once again to the intake side.

## Intake manifold



The intake manifold is an aluminium casting with an integral water jacket, through which coolant flows in order to preheat the combustion mixture.

## Mixture preheater

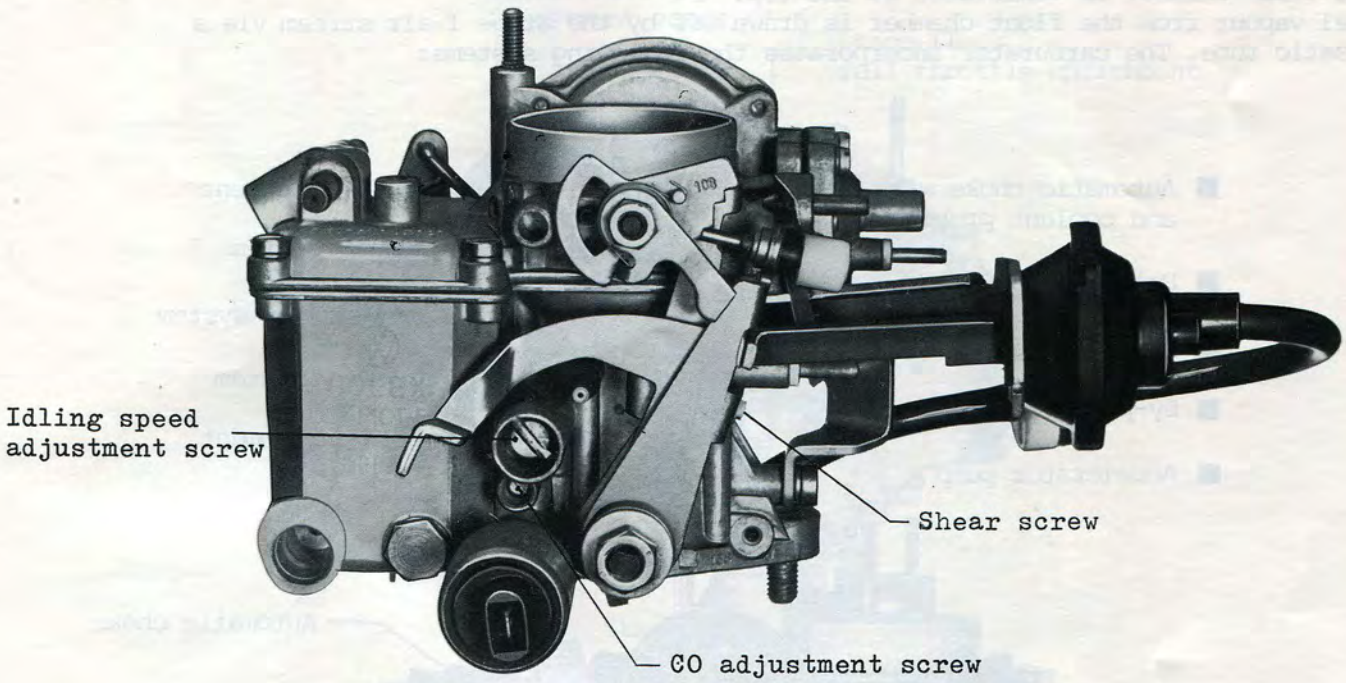
After starting from cold, the mixture is warmed up electrically by the mixture preheater.
When the coolant temperature exceeds 65°C the current for the electrical preheater is switched off by means of a temperature switch.

Both the 44 kW and the 57 kW engines are equipped with a transistorized ignition system with Hall sender.

The digital idling speed stabilisation (DIS) is only installed on the 44 kW engine. This ensures that the idling speed remains constant, even under load, whether the engine is cold or at normal operating temperature.

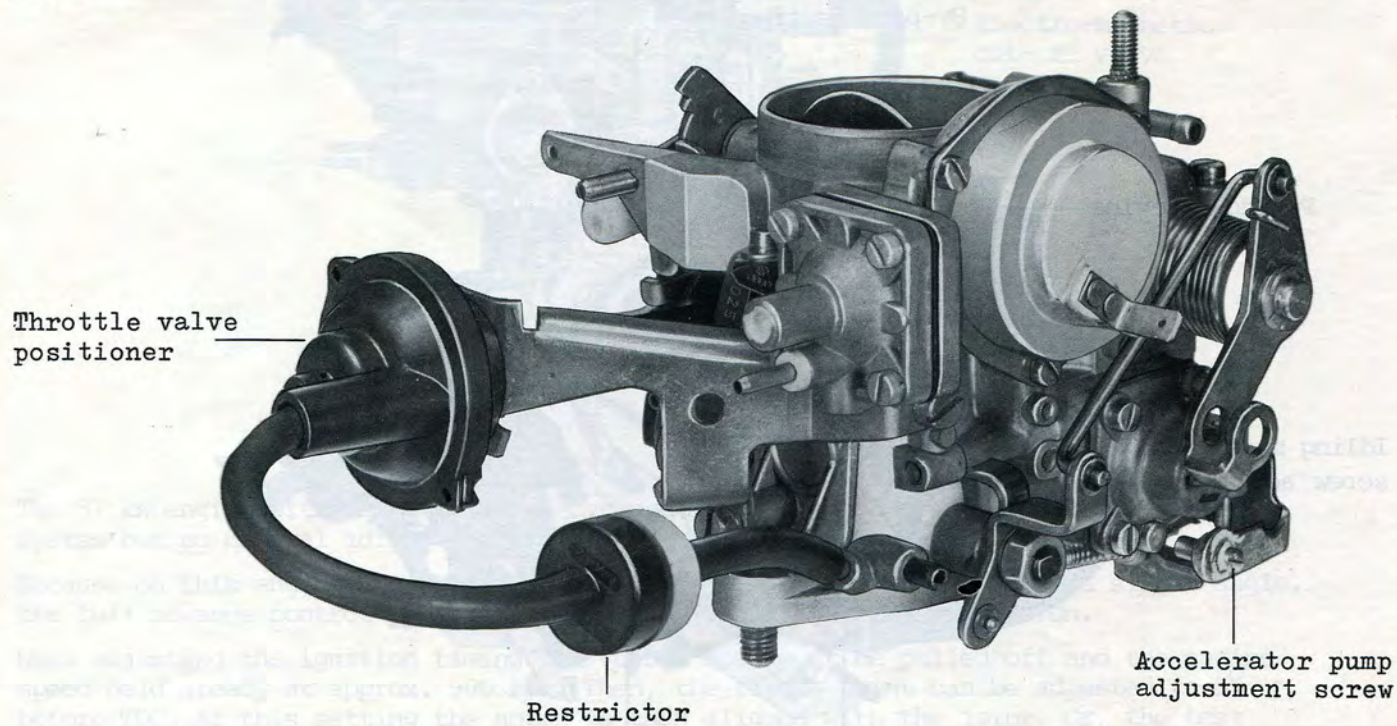
# Solex 34 PICT-5 carburetor

The 44 kW engine is fitted with the Solex 34 PICT carburetor.




On this carburetor the throttle valve stop screw is set at the factory.
The adjustment cannot be altered because the setting is adjusted with a shear type screw.

The cold idling speed, the throttle valve positioner stop screw and the choke valve gap are adjusted as normal.
Attention must be paid however to the settings applicable for this particular engine.

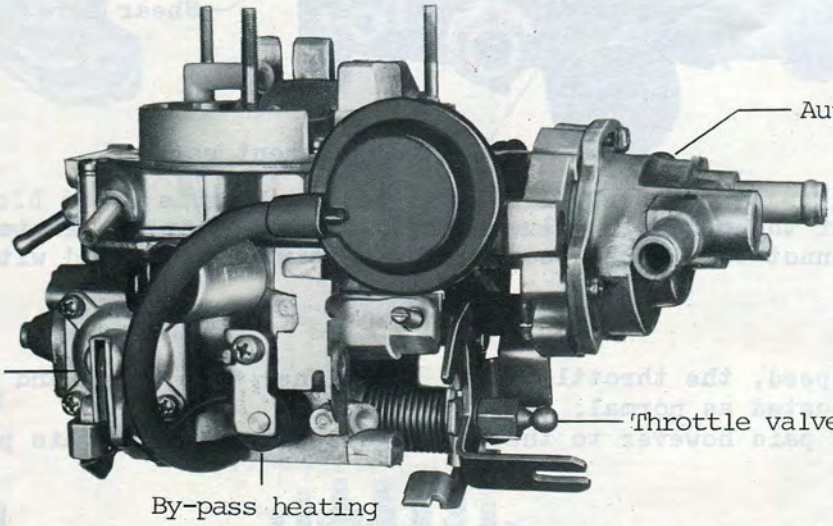


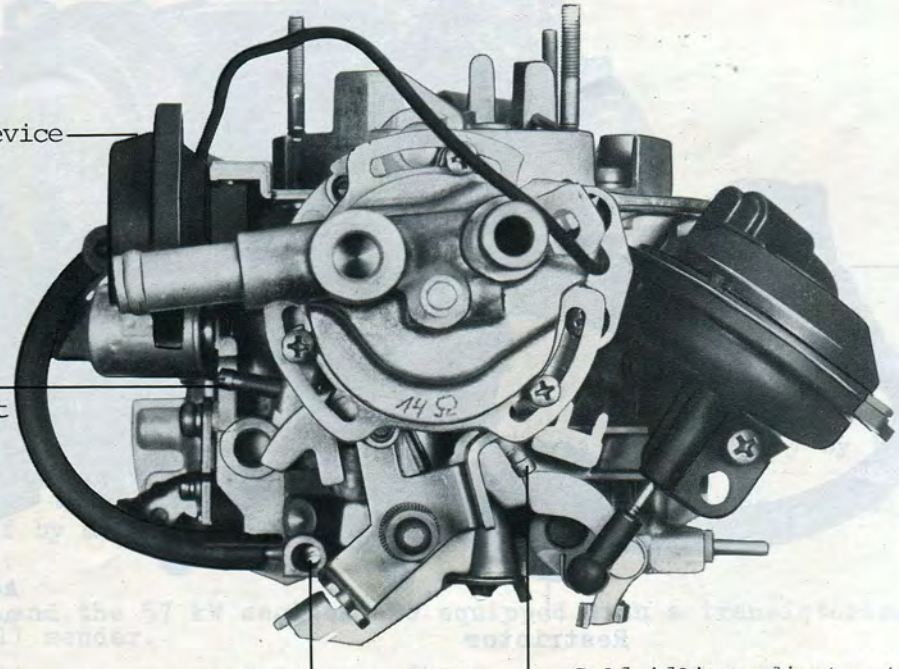

The injection capacity of the accelerator pump is adjusted by means of the pump lever adjustment screw.

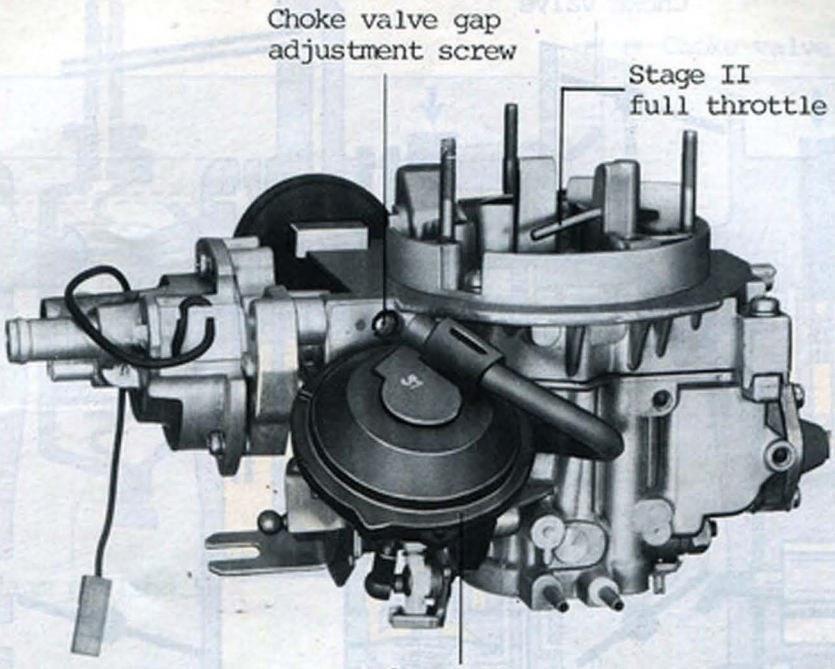
# 2E3 Carburetor

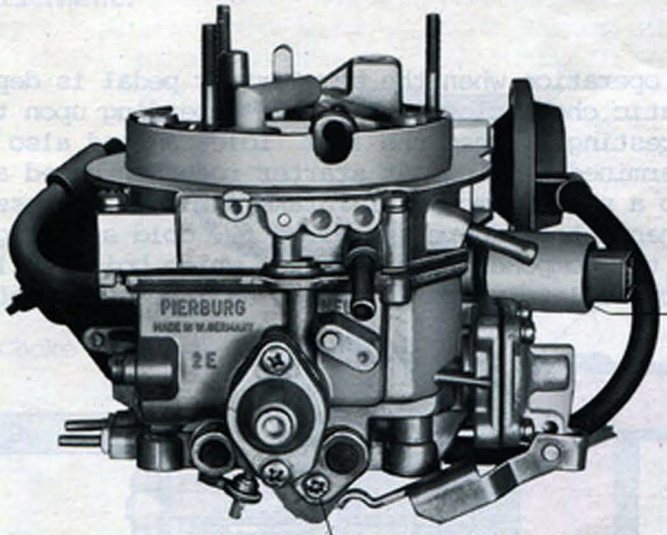
The 2E3 carburetor is a twin-choke version without by-pass air system.
The float chamber is ventilated at the top.
Fuel vapour from the float chamber is drawn off by the Stage I air stream via a plastic tube. The carburetor incorporates the following systems:

- Automatic choke with electrical and coolant preheating
- Pulldown device
- Idling system
- By-pass heating
- Accelerator pump
- Part throttle enrichment
- Stage I primary system
- Stage II progression system
- Stage II primary system
- Full throttle enrichment





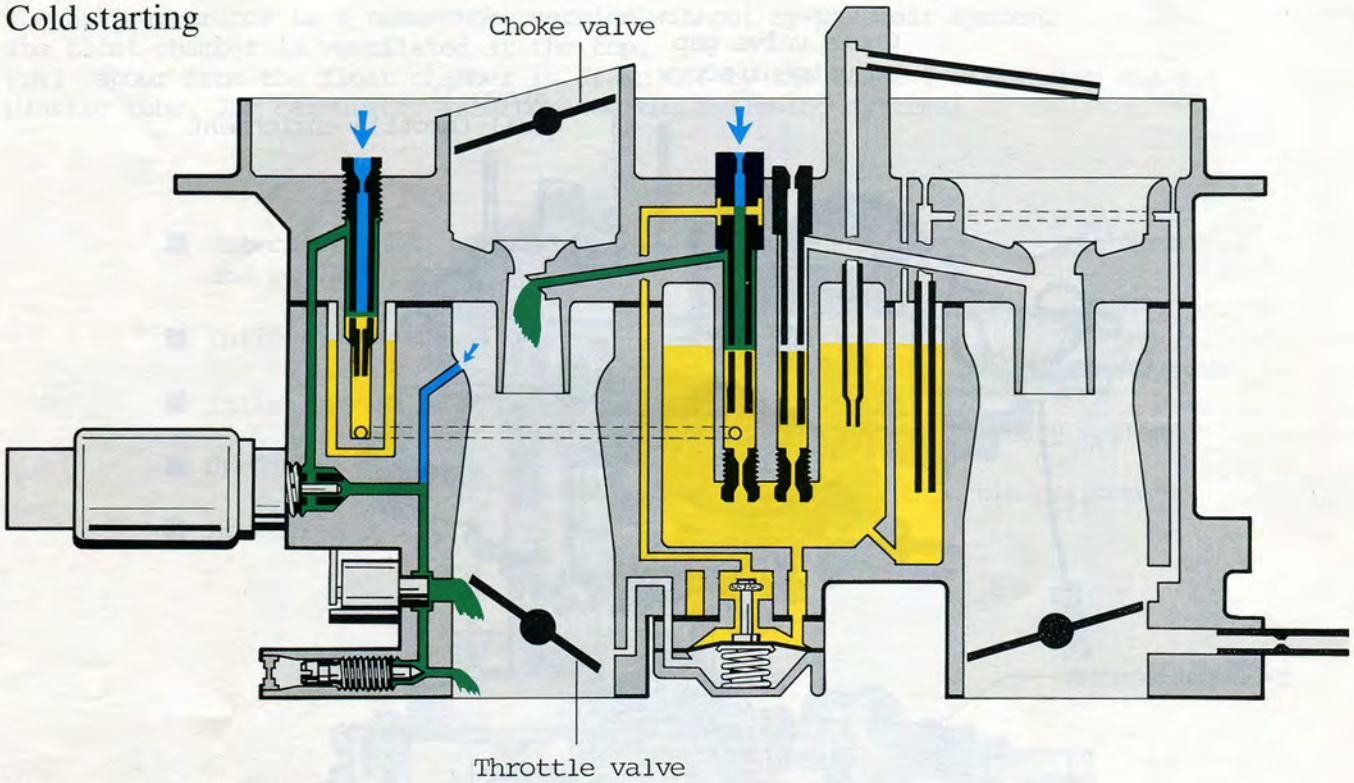

The 57 kW engine with the twin choke carburetor also has a transistorized ignition system but no digital idling stabilization.

Because on this engine the throttle valve position during idling is at a slight angle, the full advance control is effective at low intake manifold depression.

When adjusting the ignition timing the vacuum hose must be pulled off and the engine speed held steady at approx. 900 rpm. Then, the firing point can be adjusted to 5° before TDC. At this setting the notch is then aligned with the joint. Or, the test appliance indicates the 5° directly. Following this the vacuum hose is pushed again on to the advance vacuum unit connection.
The idling speed is adjusted by alternately rotating the idling and CO adjustment screws.

# 2E3 Carburetor Functions

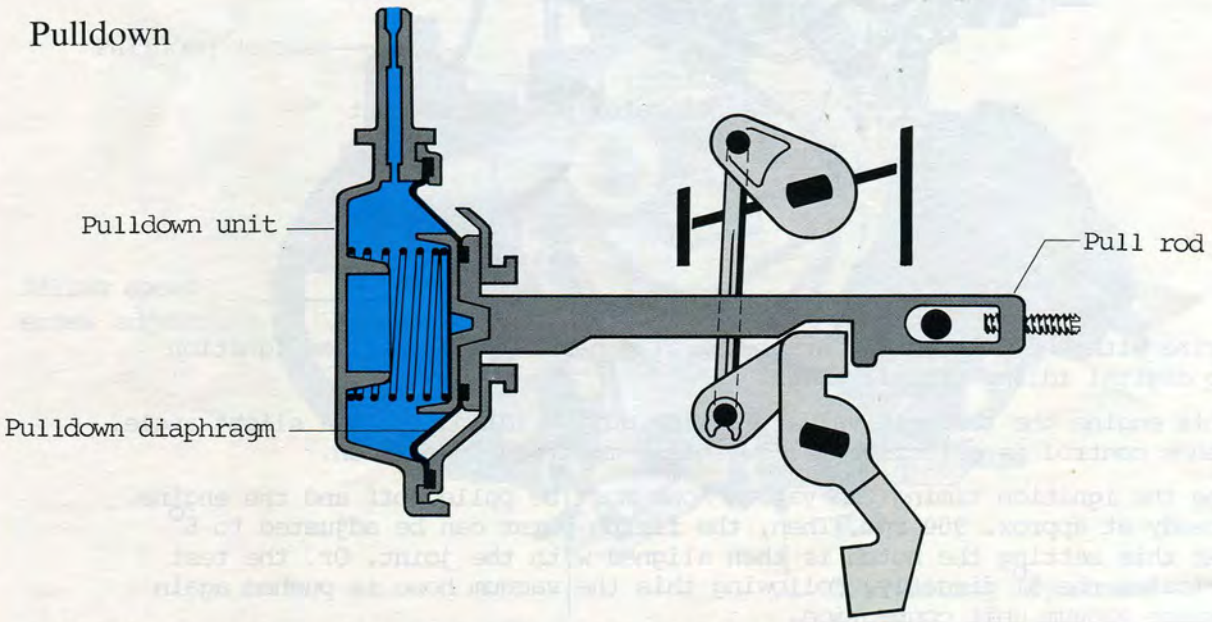
## Cold starting



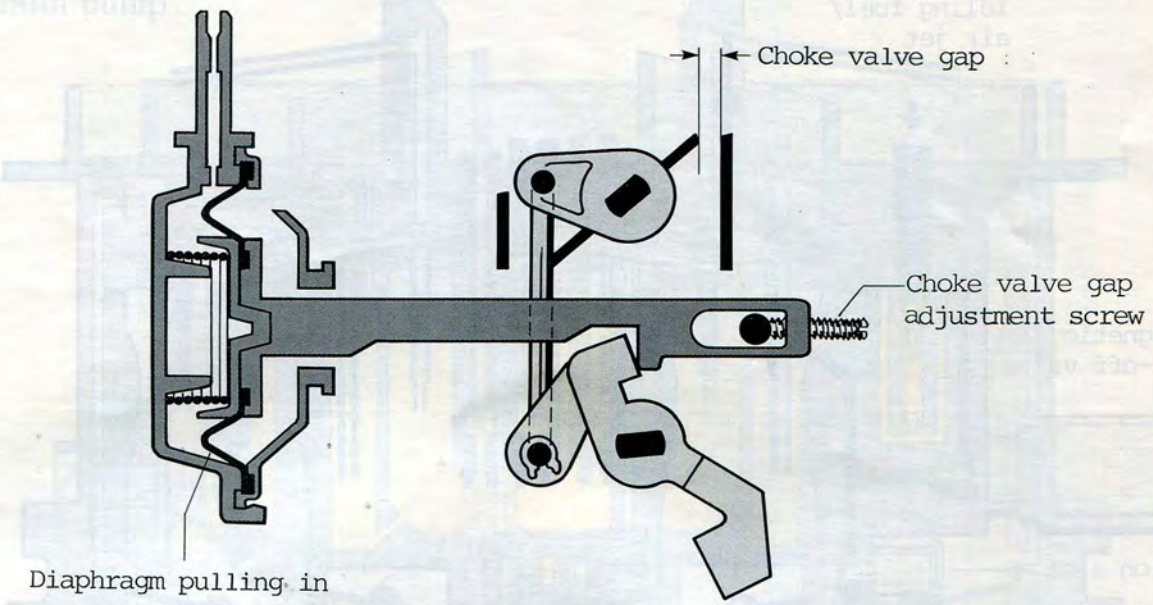

## It works like this:

The automatic choke is put into operation when the accelerator pedal is depressed. The bimetal spring in the automatic choke closes the valve depending upon the ambient temperature. The stop screw is resting against the fast idle cam and also holds the throttle valve open to a predetermined setting. At starter rotation speed all fuel jets of Stage I are subjected to a slight amount of intake manifold depression. This ensures that the mixture is richened to a degree required for cold starting. The compression temperature vapourizes the components in the fuel which boil easily. In conjunction with the air, a combustible mixture is formed and the engine starts.

## Pulldown

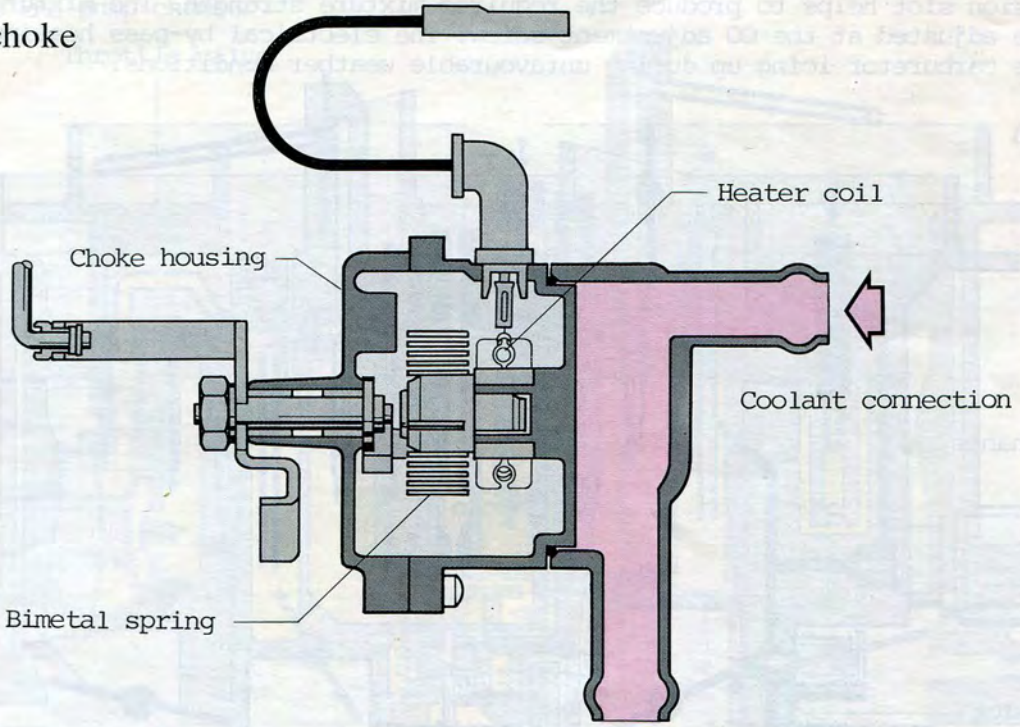



Initially, during a cold start, the choke valve is fully closed.




To prevent overenrichment the choke valve must be opened to a predetermined setting. This is done by the Pulldown device. Due to the low pressure in the intake manifold, the Pulldown diaphragm pulls the choke valve open to a predetermined setting in order to prevent overenrichment.

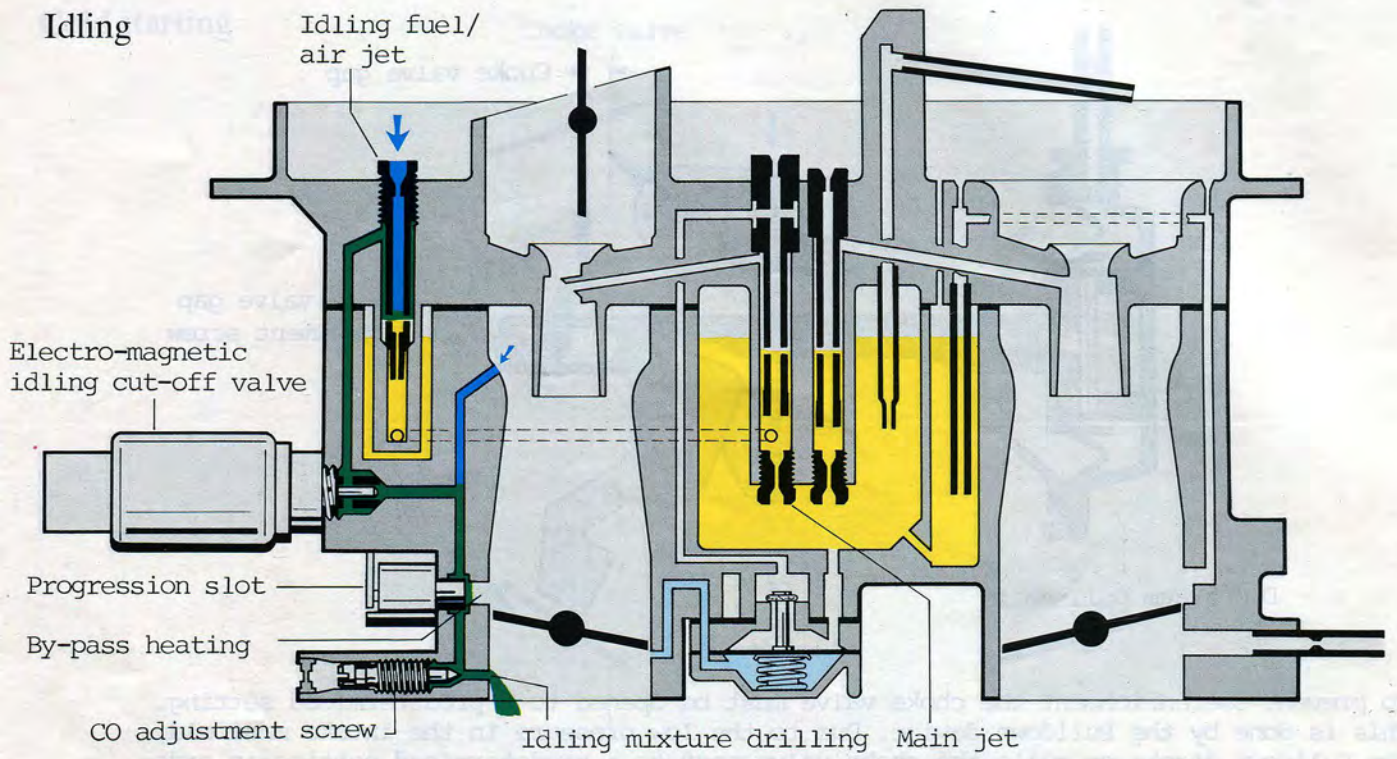
## Automatic choke




Due to the electric heating and the increasing coolant temperature, the tension on the bimetal spring becomes consistently less. The choke valve is now opened gradually until it is fully opened. The fast idle cam returns to its normal position and the throttle valve returns to the throttle valve stop screw at which the idling speed is also adjusted.
When the coolant temperature exceeds 65°C a thermoswitch in the hose for intake manifold heating switches off the electrical heating element, for the mixture pre-heating and the automatic choke.

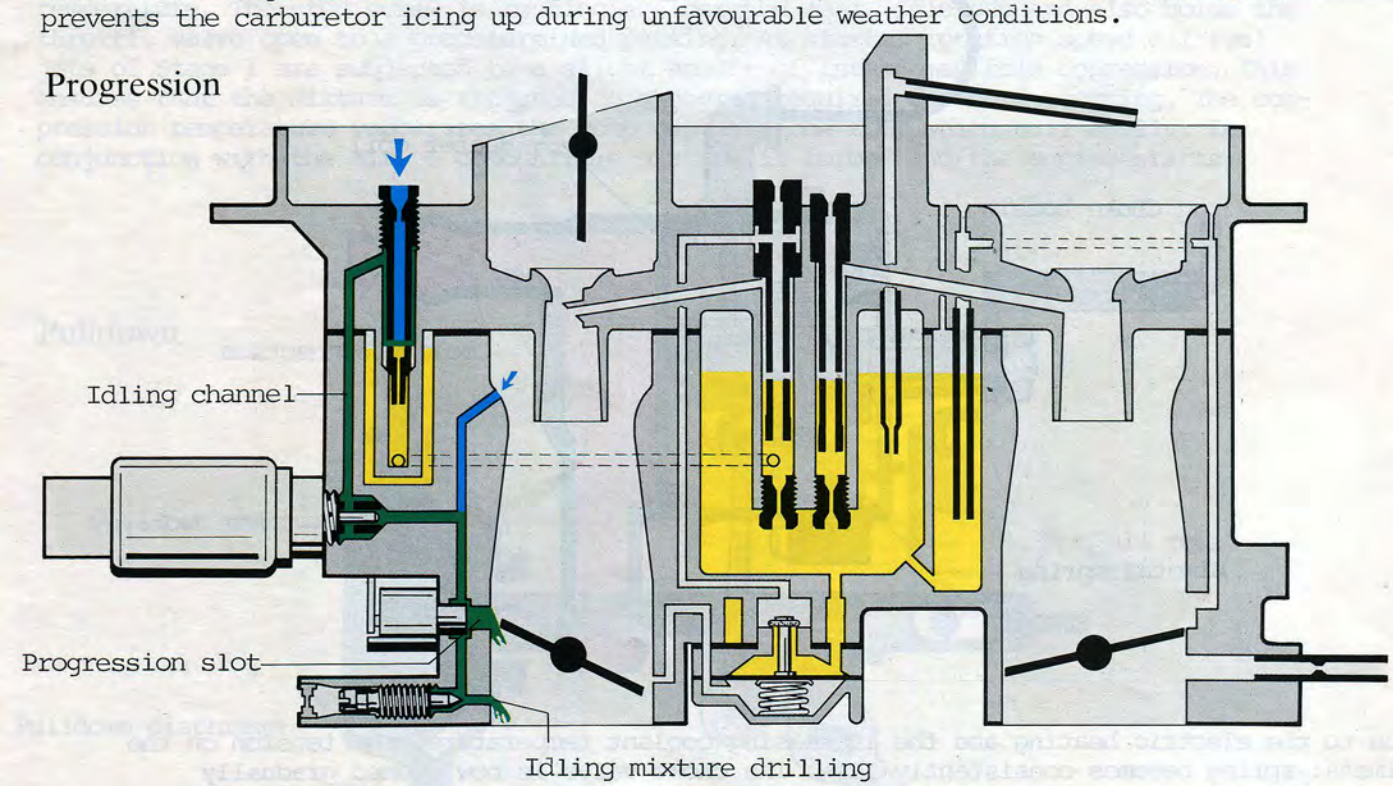
# 2E3 Carburetor Functions

## Idling



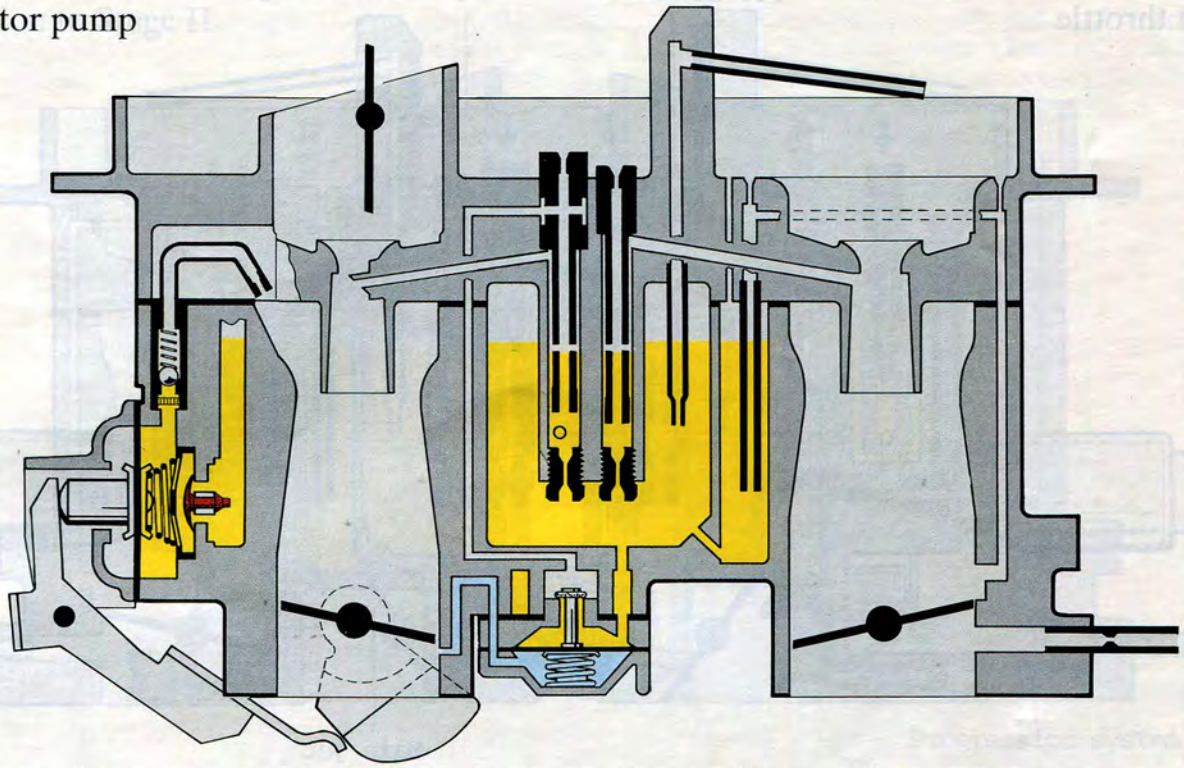

During idling when the throttle valve is almost closed the fuel is precalibrated by the Stage I main jet. This mixture passes through the idling cut-off valve to the idling mixture drilling via the idling/fuel air jet. The air now flowing through the progression slot helps to produce the required mixture strength. The mixture ratio can be adjusted at the CO adjustment screw. The electrical by-pass heating prevents the carburetor icing up during unfavourable weather conditions.

## Progression

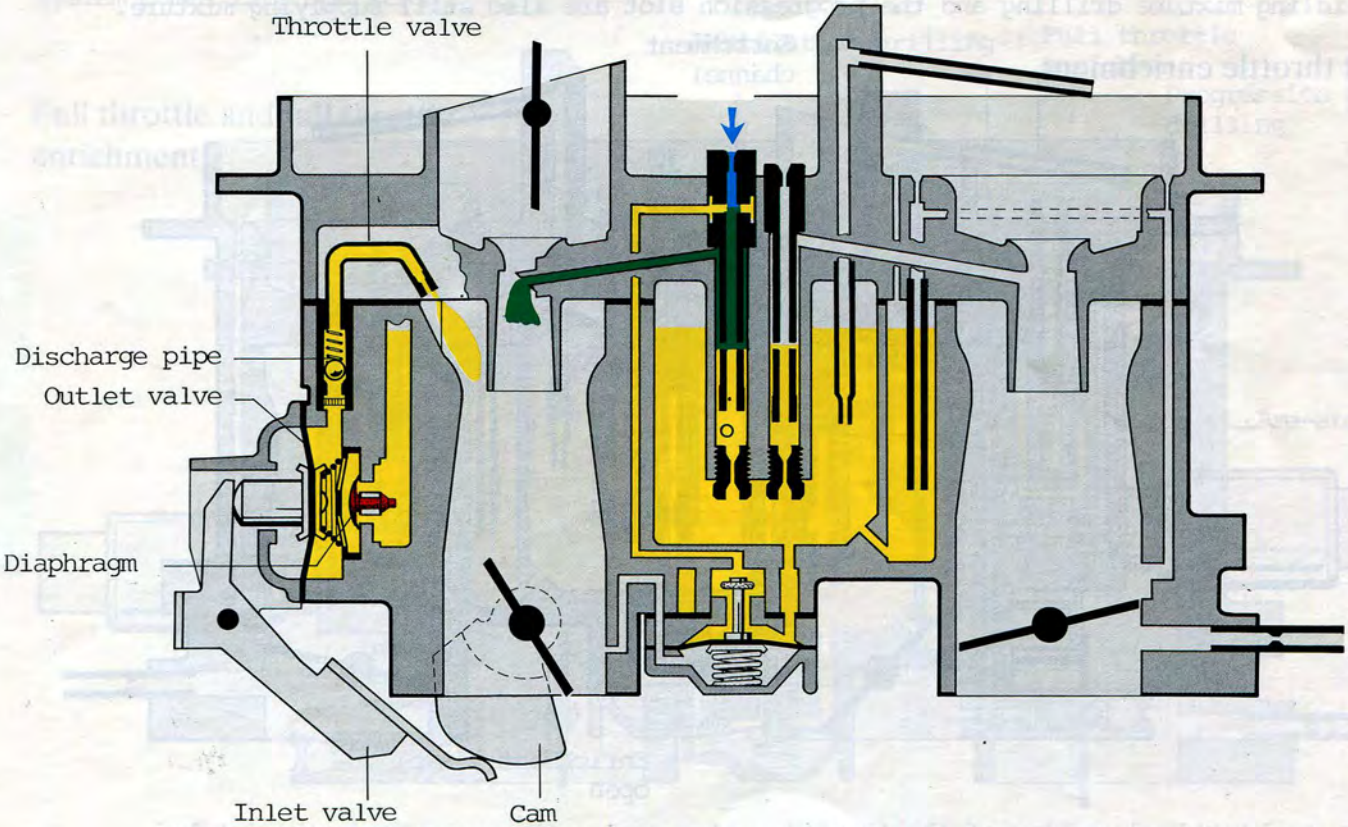



The progression slot is located above the idling mixture drilling to ensure a smooth transition from idling to the other systems.
When the throttle is opened, a crescent shaped gap is formed in the progression slot area. Due to the drop in pressure becoming effective, additional mixture from the idling channel now flows out of the progression slot into the mixing chamber.

## Accelerator pump



When the throttle valve moves into the idling position, the pump diaphragm is pushed outwards by the spring and fuel flows into the pump chamber.

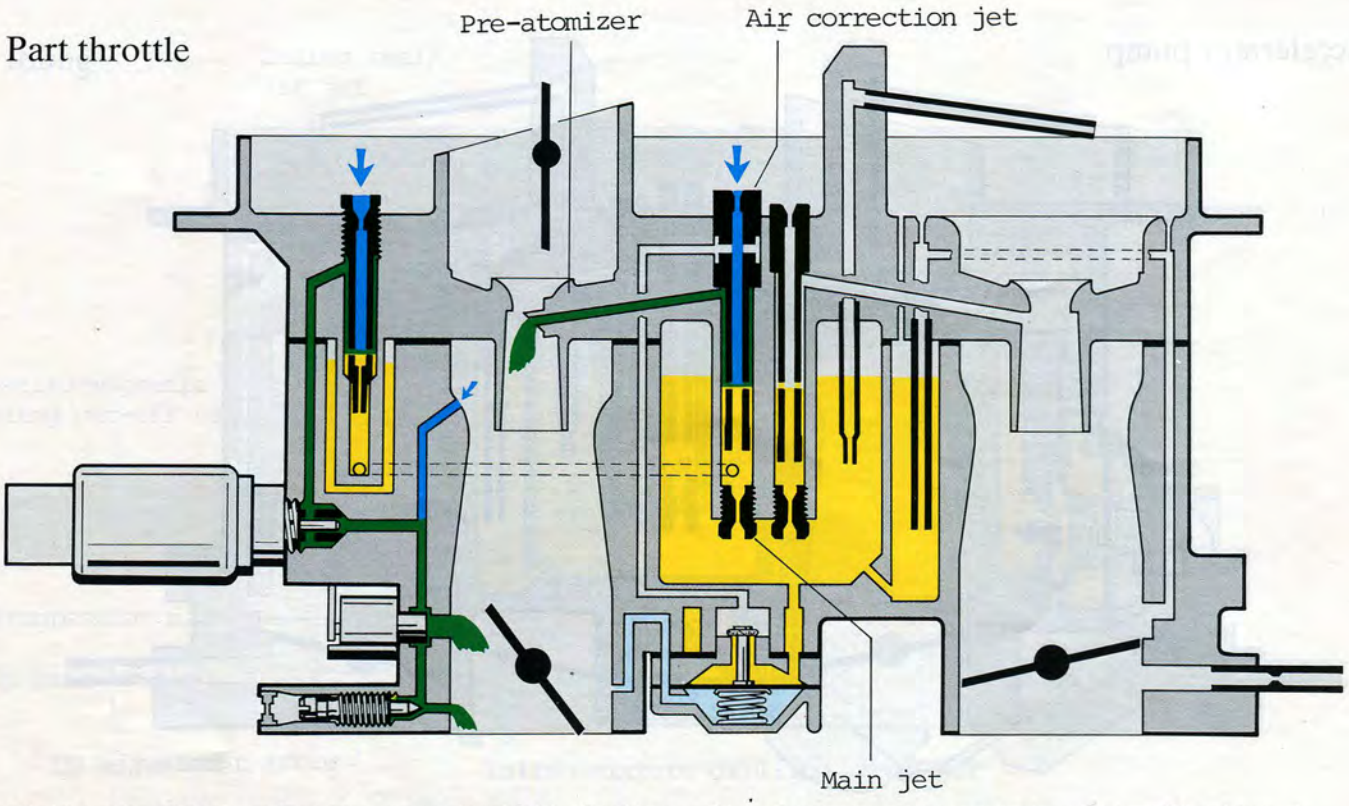



When the accelerator pedal is depressed, the pump lever is operated by the cam on the throttle valve, and this in turn brings pressure to bear against the diaphragm. The inlet valve closes, the outlet valve is forced off its seat thus opening the passage to the discharge pipe.

The capacity injected can be corrected by adjusting the cam position.

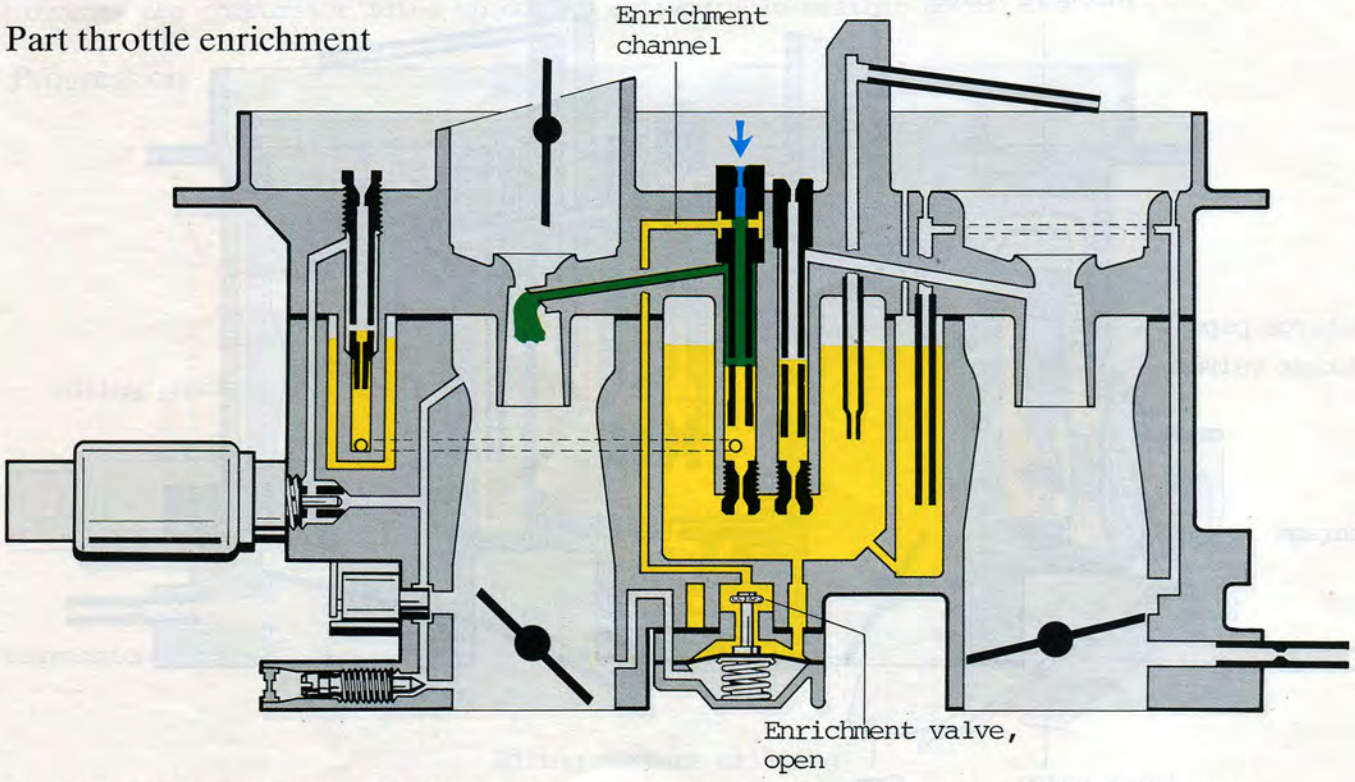
# 2E3 Carburetor Functions

## Part throttle



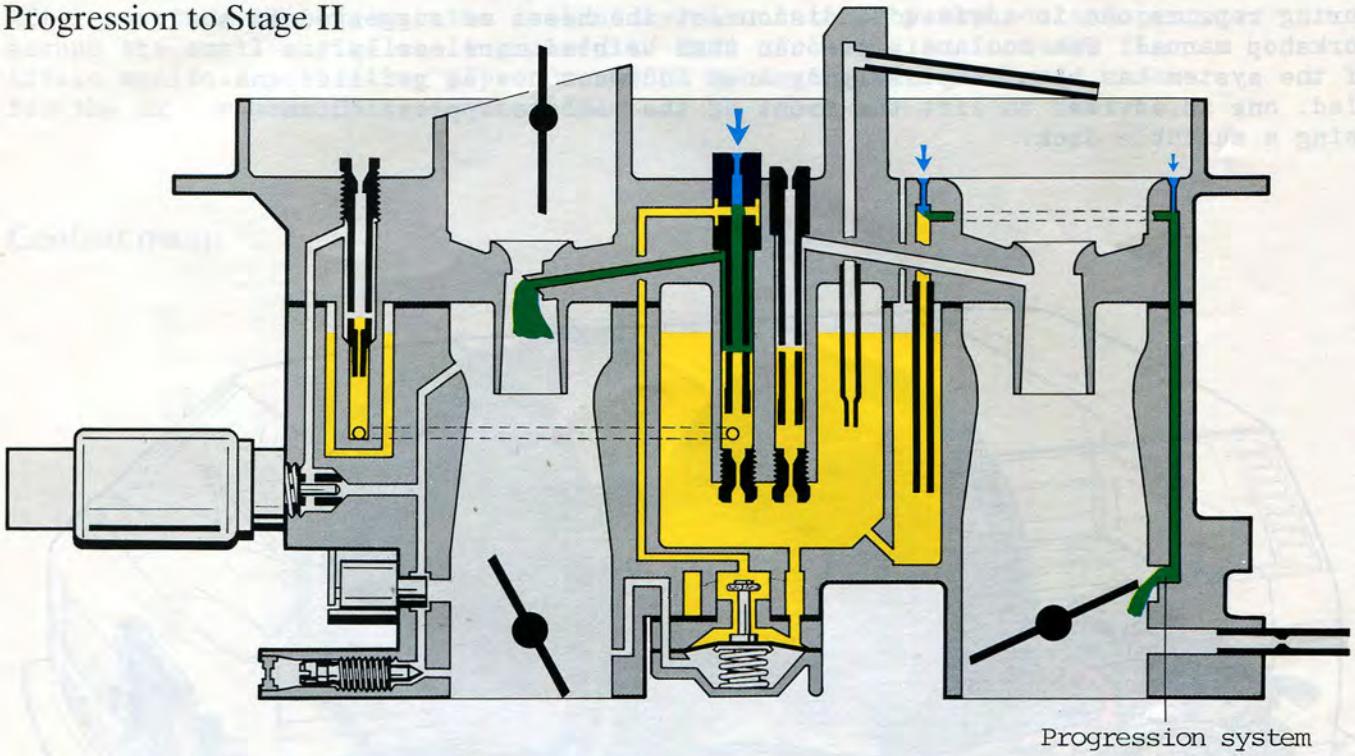

If the throttle valve is opened still further, the drop in pressure is also effective on the primary system. The fuel metered out by the main jet forms, with the air from the air correction jet, a pre-mixture, which passes into the mixing chamber via the pre-atomizer.
The idling mixture drilling and the progression slot are also still supplying mixture.

## Part throttle enrichment



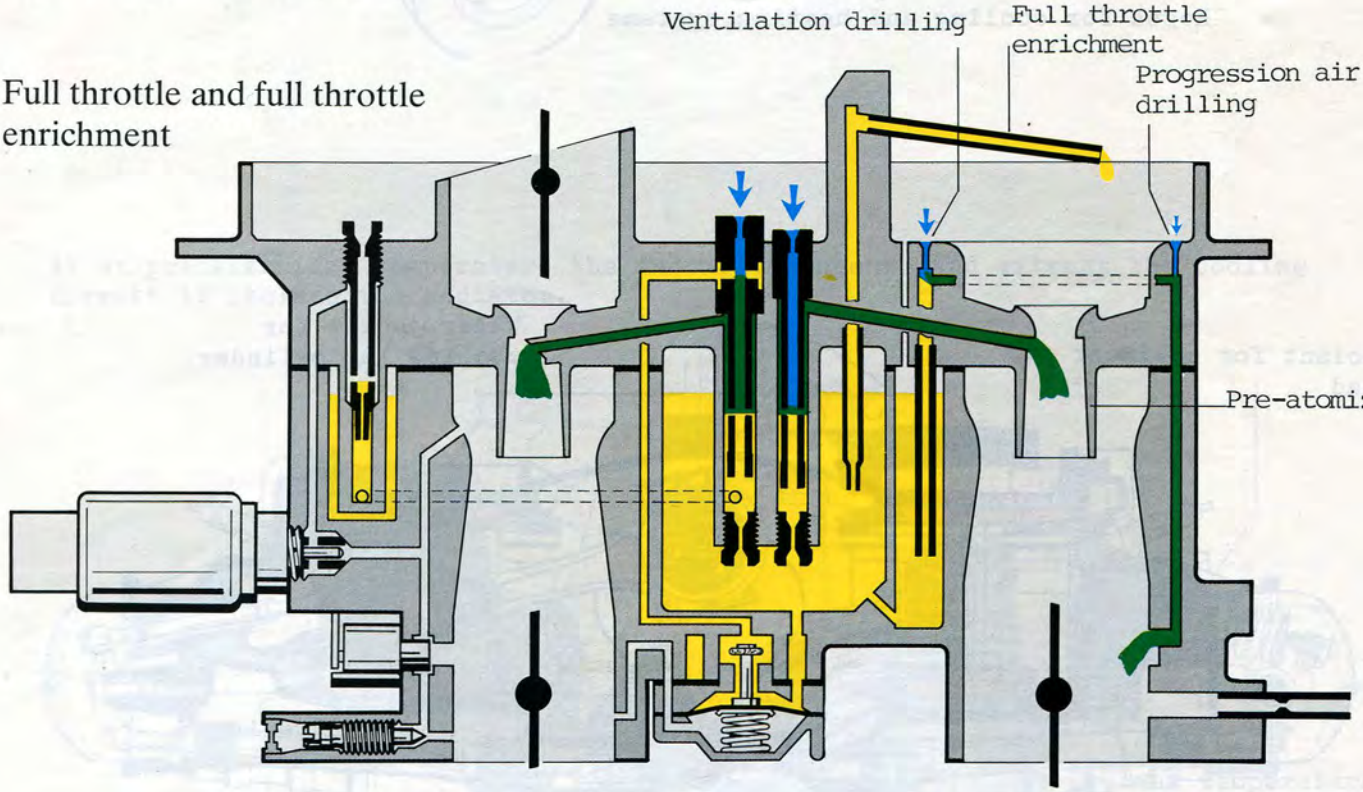

At a predetermined opening of the throttle valve angle, the pressure in the intake manifold increases to such an extent that the spring opens the enrichment valve. Because of this, additional fuel from the float chamber can be fed directly into the primary system via channels. The supply of pre-mixture from the idling mixture drilling and the progression slot becomes less and less until it stops altogether.

## Progression to Stage II




The Stage II throttle valve is mechanically locked in position until the Stage I has reached a predetermined position. When a predetermined pressure is effective on the diaphragm unit, the Stage II throttle valve can be very slightly opened. This causes the Stage II progression system to supply mixture until the main jet system comes into operation.

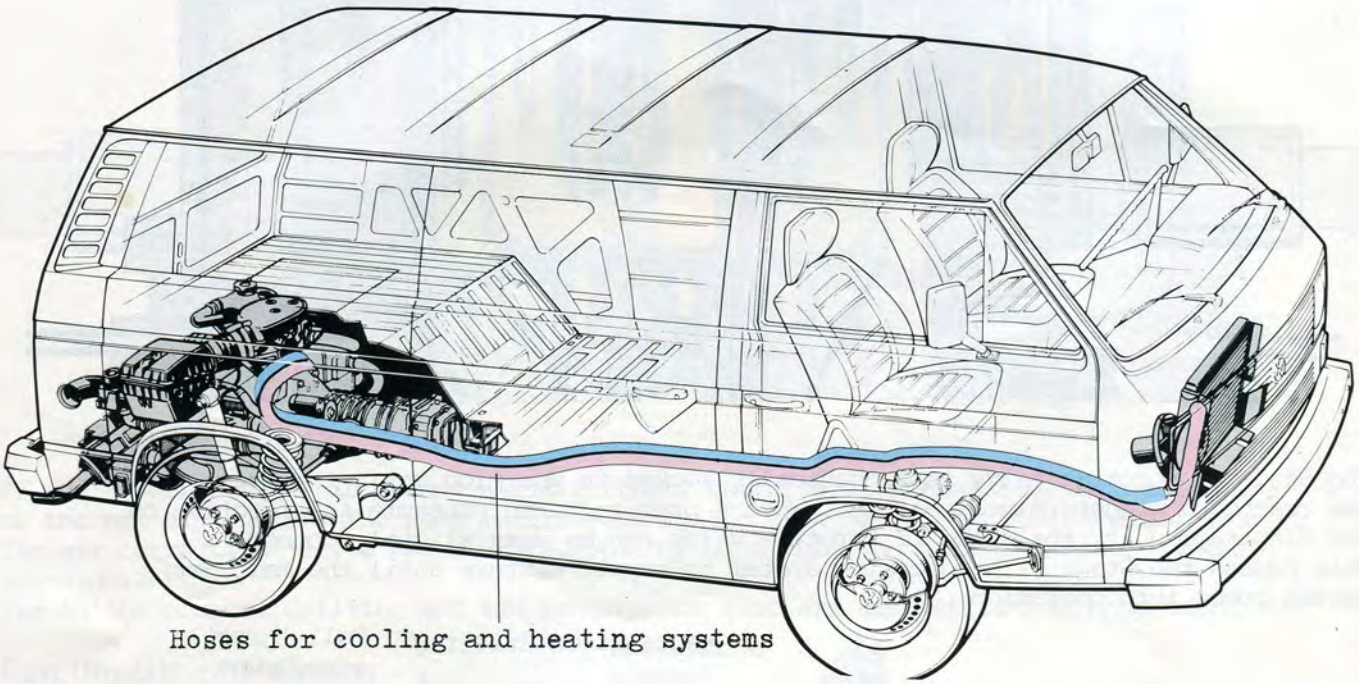
## Full throttle and full throttle enrichment



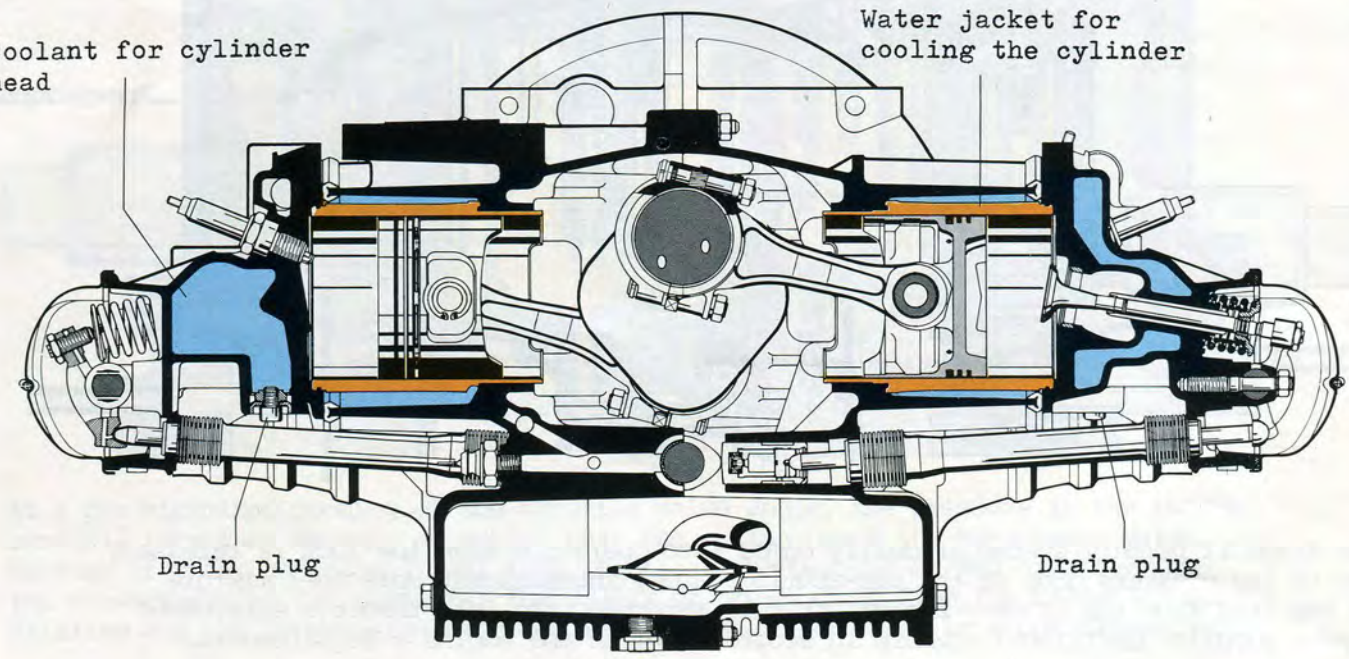

The Stage II primary system gradually comes into operation when the lock is released. Due to the pressure drop in the pre-atomizer area, increasingly more fuel mixture is supplied from the primary system. At full throttle, the full throttle enrichment system supplies additional mixture in accordance with the engine's requirements.

# Cooling

During repairs one is advised to disconnect the hoses as suggested in the workshop manual. The coolant pipes can then be bled more easily.
If the system has been completely drained and must now be refilled and bled, one is advised to lift the front of the vehicle approx. 40 cm using a suitable jack.

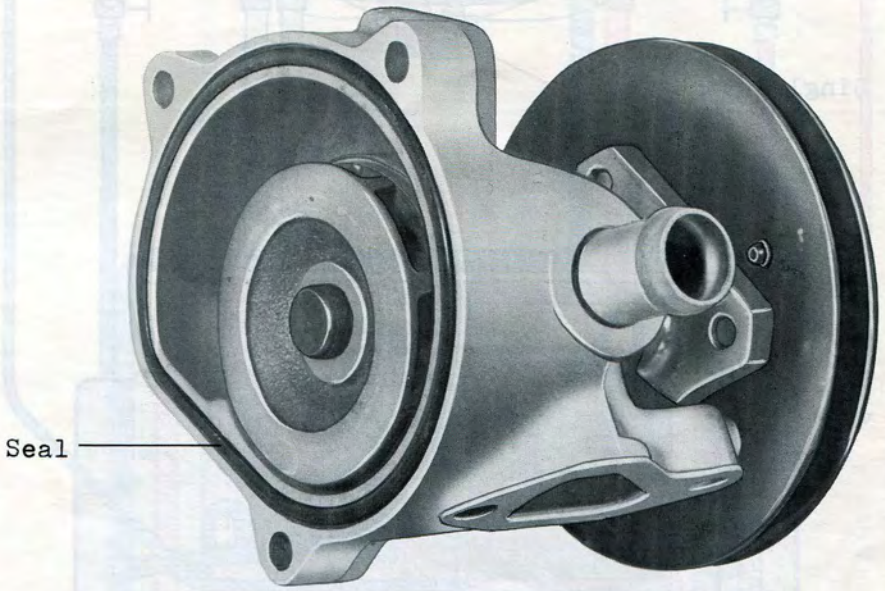


Hoses for cooling and heating systems

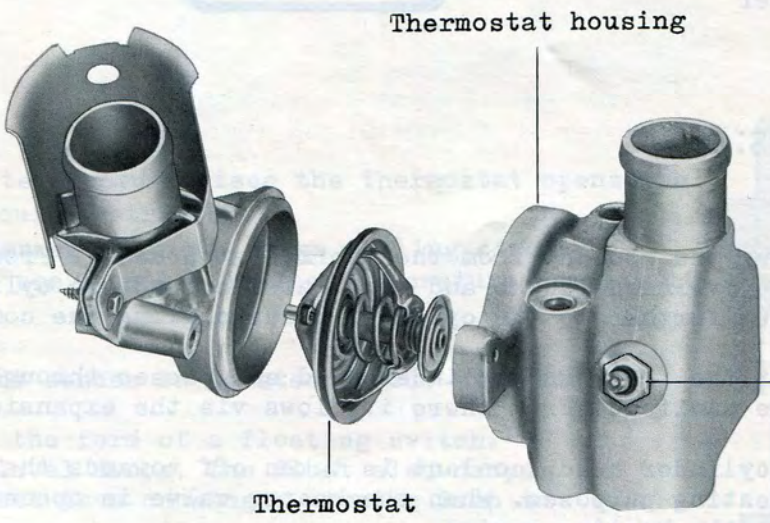


After starting the engine, the coolant is circulated, by the coolant pump, around the small engine cooling circuit. This circuit also includes the intake manifold preheating pipe. On the 57 kW engine the automatic choke for the 2E carburetor is also heated.

## Coolant pump

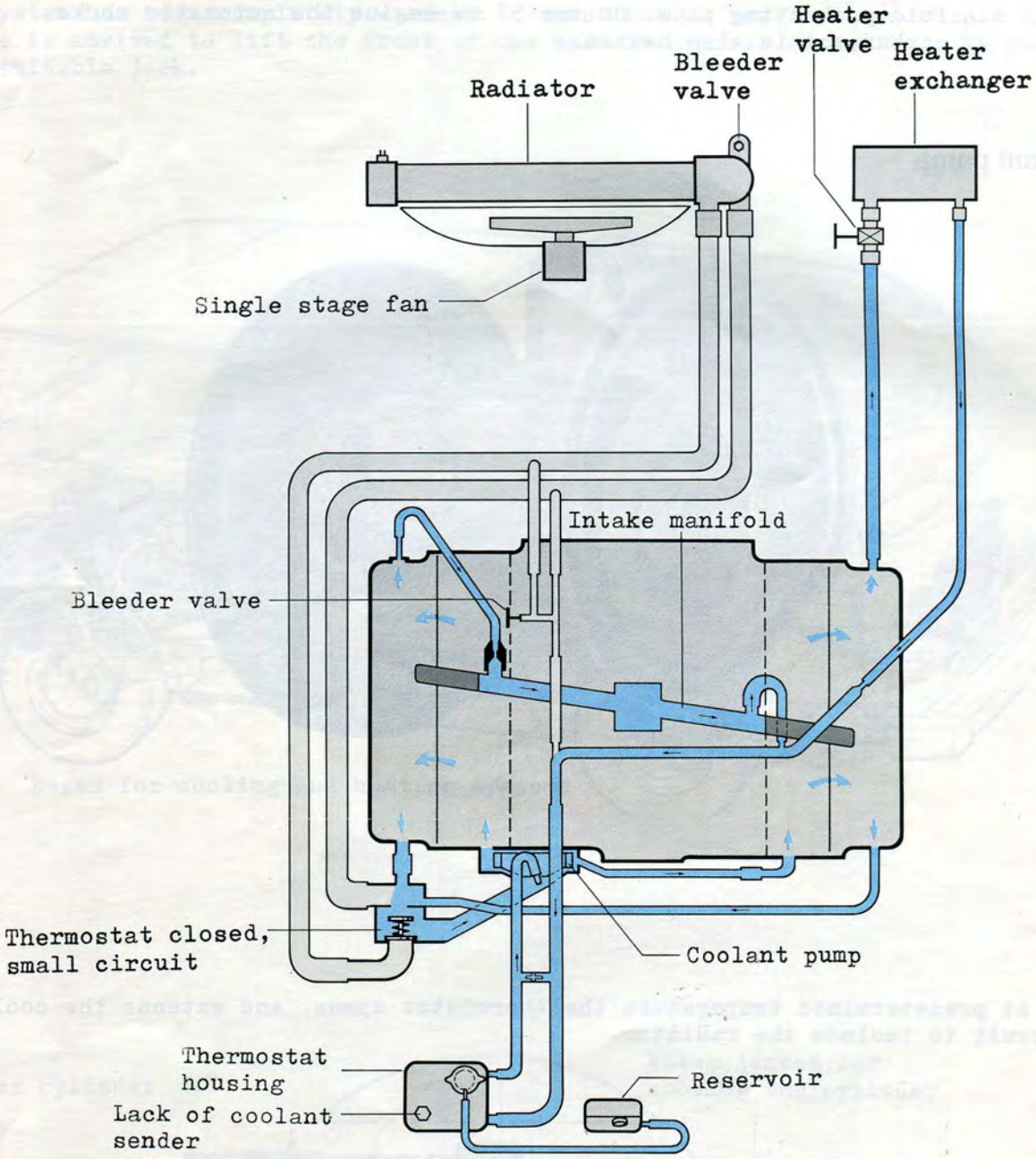



At at predetermined temperature the thermostat opens, and extends the cooling circuit to include the radiator.



# Cooling circuit

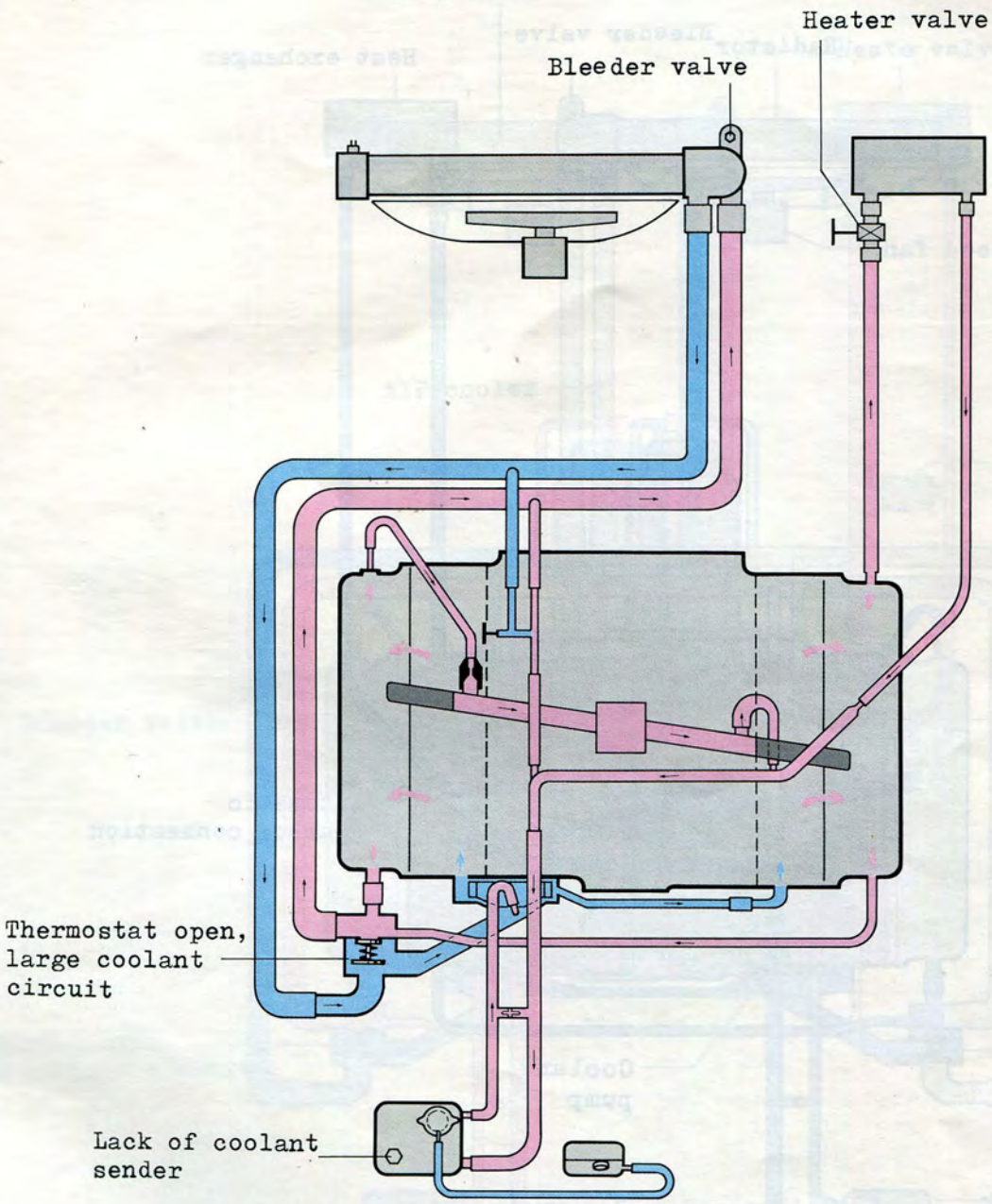
## 44 kW engine




## It works like this:

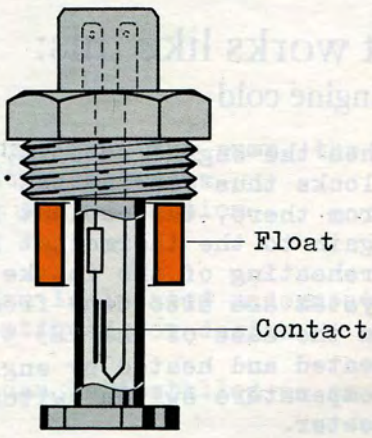
### Engine cold

The coolant pump draws the coolant from the thermostat housing. From the pump, the coolant passes to the cylinder blocks and circulates around the cylinders.
The coolant then flows further to the cylinder heads cooling the combustion chambers and valves.
Coolant is tapped off the left hand cylinder head and passes through a hose for preheating the intake manifold. From there it flows via the expansion tank back into the circuit.
From the right hand cylinder head, coolant is taken off towards the front to the heat exchanger for heating purposes. When the heater valve is opened the coolant can circulate through the heating system.




## Engine warm

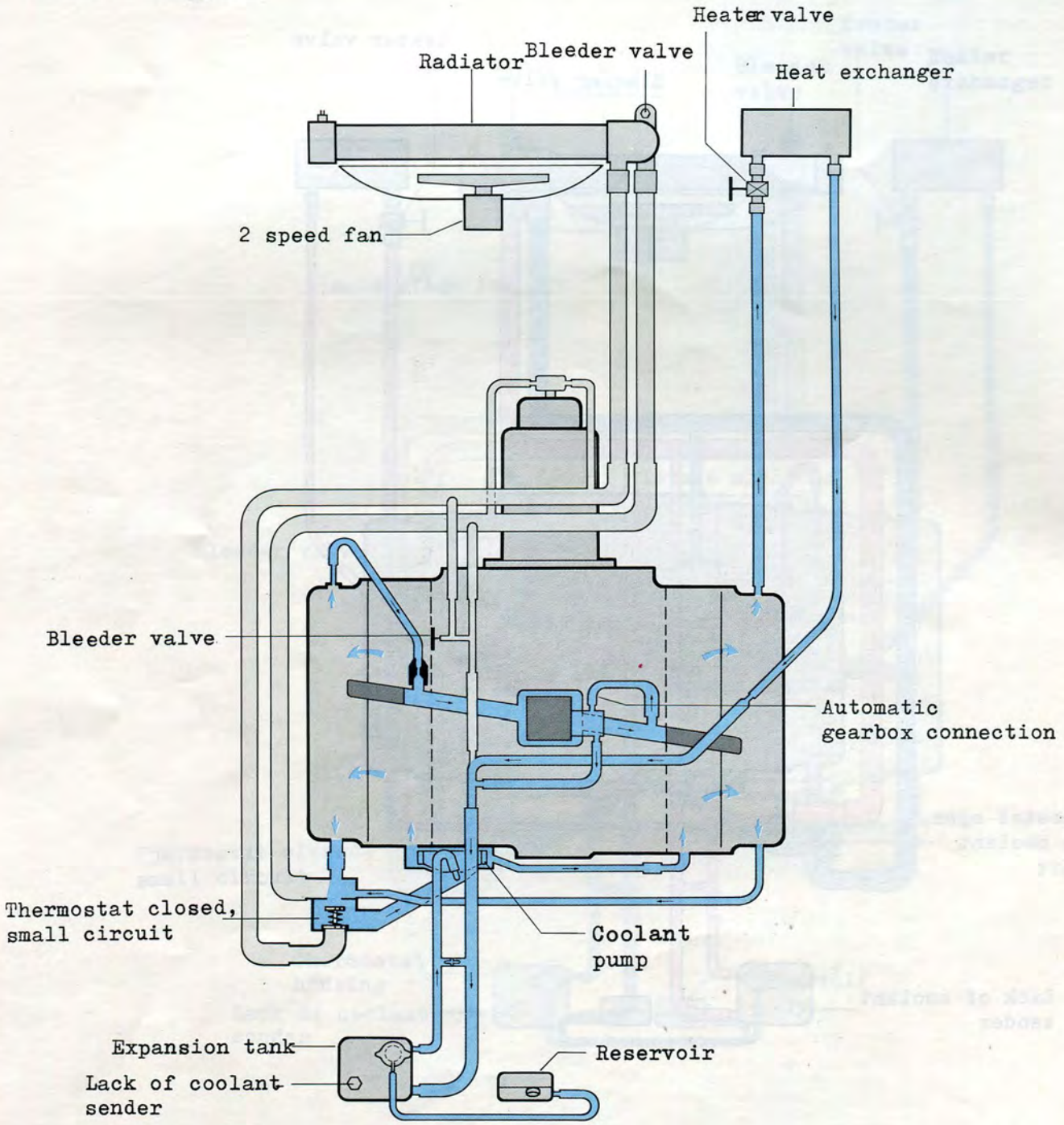
When the coolant temperature rises the thermostat opens the large cooling circuit restrictor.
This procedure ensures that the large cooling circuit is only brought into use when the engine temperature demands it.




The lack of coolant sender is located in the expansion tank.
This sender is in the form of a floating switch.
When the coolant level drops, the float also drops and closes a contact thus causing a warning lamp to flash.

# Cooling circuit

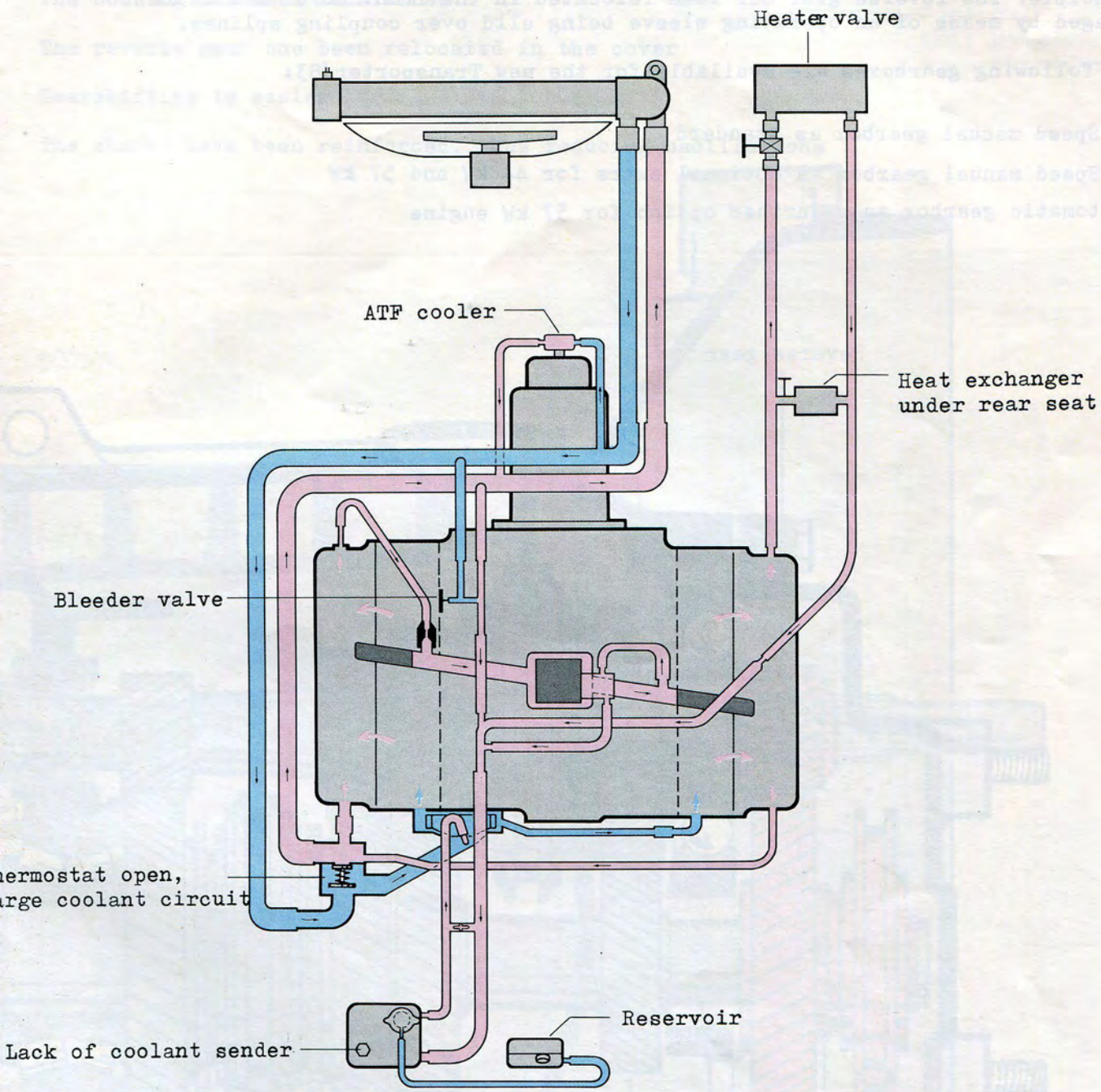
## 57 kW engine




## It works like this:

### Engine cold

When the engine is cold, the coolant pump circulates the coolant to the cylinder blocks thus cooling the cylinders.
From there, the coolant flows further into the cylinder heads and then returns once again to the thermostat housing where the circuit is then repeated.
Preheating of the intake manifold and supplying the heat exchanger for the heater system are also done from the left and right hand cylinder heads respectively.
In the case of the 2E3 twin choke carburetor, the automatic choke is electrically heated and heated by engine coolant. At a coolant temperature of approx. 60°C a temperature switch switches off the automatic choke heater and the manifold pre-heater.




## Engine warm

The coolant pump draws the coolant from the thermostat housing. From the pump, the coolant passes to the cylinder blocks and circulates around the cylinders. The coolant then flows further to the cylinder heads cooling the combustion chambers and valves.

On vehicles with automatic gearbox the heat exchanger with fan is located underneath the rear seat because the vent in the passage has been discontinued for design reasons.
On all other personnel type transporters the heat exchanger can be installed as an optional extra.

# 4 Speed manual gearbox

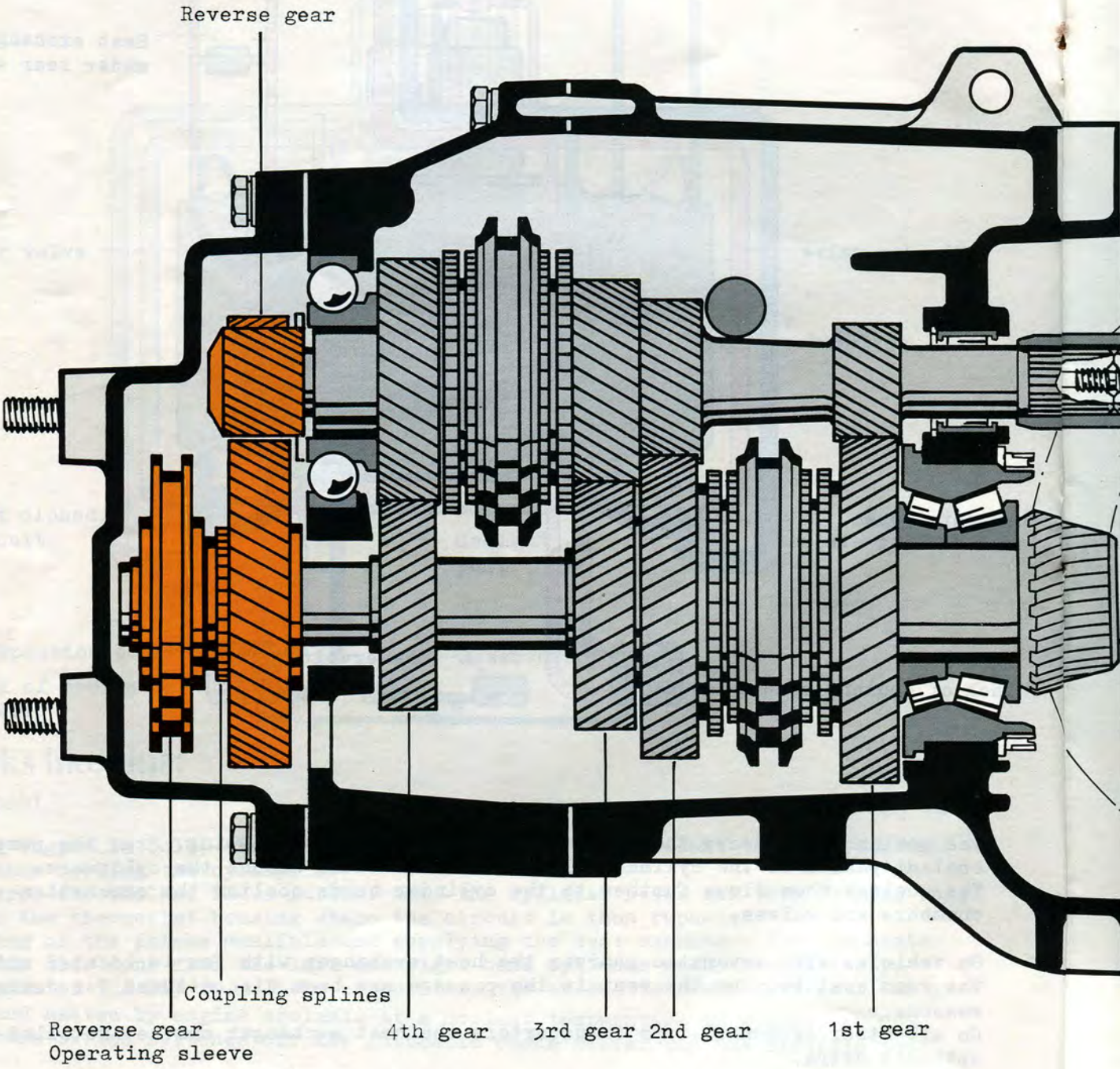
The 4 speed manual gearbox is a further development of the well-known Transporter gearbox.
The design and function of the four forward speeds are exactly the same in principle. The reverse gear has been relocated in the front cover and it is engaged by means of an operating sleeve being slid over coupling splines.

The following gearboxes are available for the new Transporter '83:

4 Speed manual gearbox as standard

5 Speed manual gearbox as optional extra for 44 kW and 57 kW

Automatic gearbox as a further option for 57 kW engine



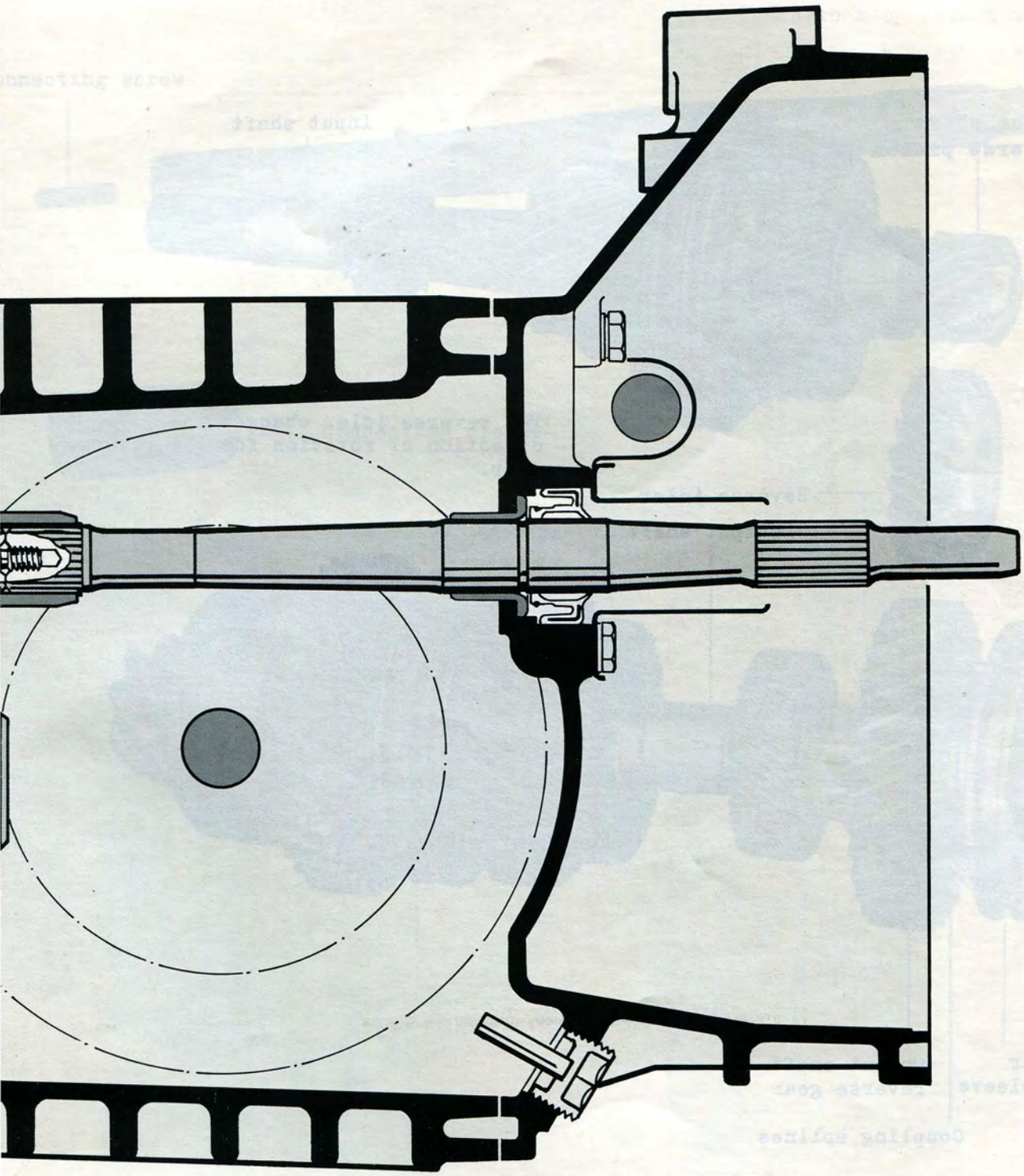
The manual gearboxes have been improved as follows:

The housing has been reinforced

The reverse gear has been relocated in the cover

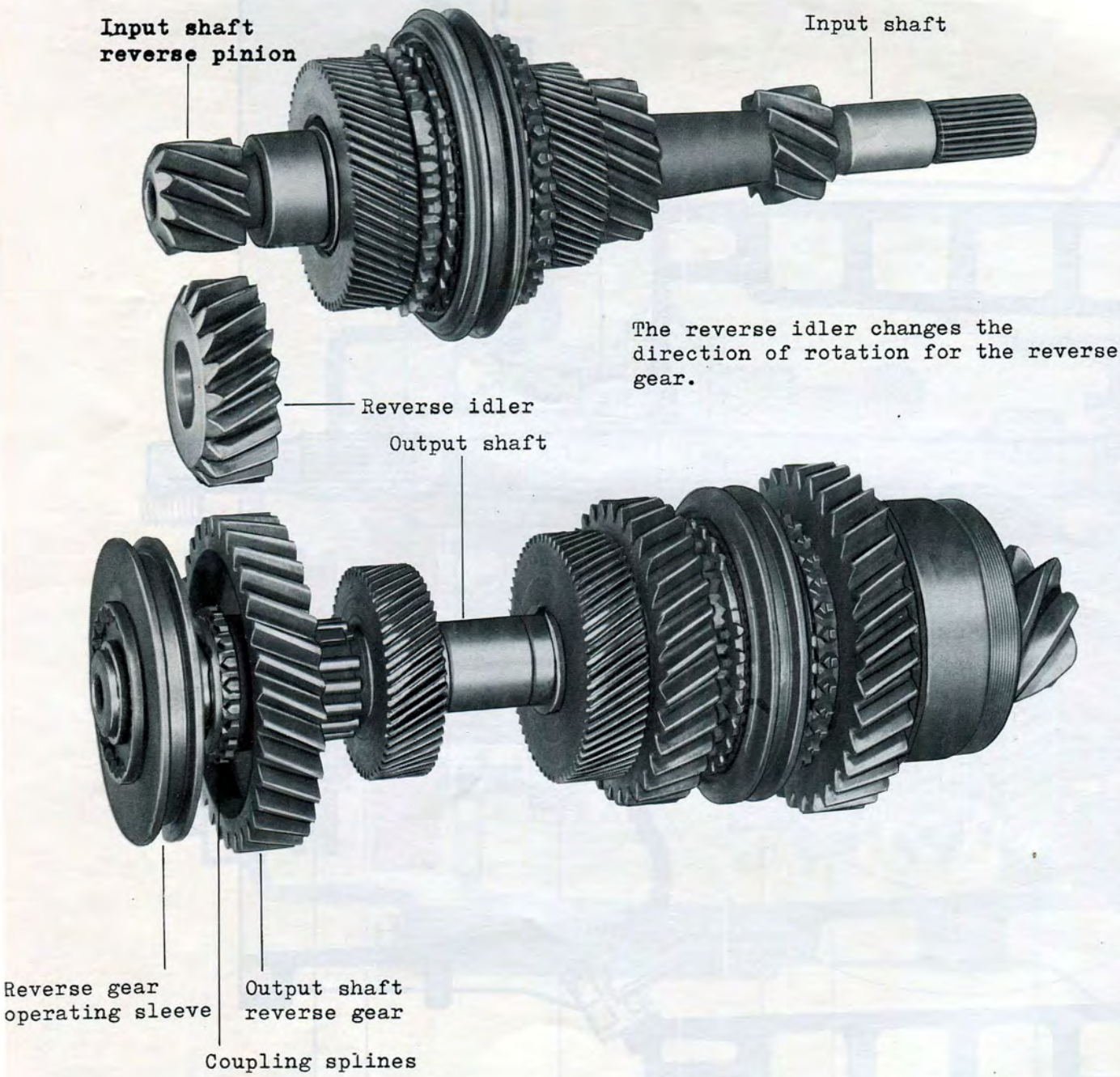
Gearshifting is easier

The shafts have been reinforced, thus reducing oscillations



## It works like this:

**When reverse gear is selected, the input shaft pinion drives the reverse gear idler which in turn drives the output shaft reverse gear. The power is transmitted from the coupling splines to the output shaft pinion via the operating sleeve.**




Connecting screw
Connecting sleeve

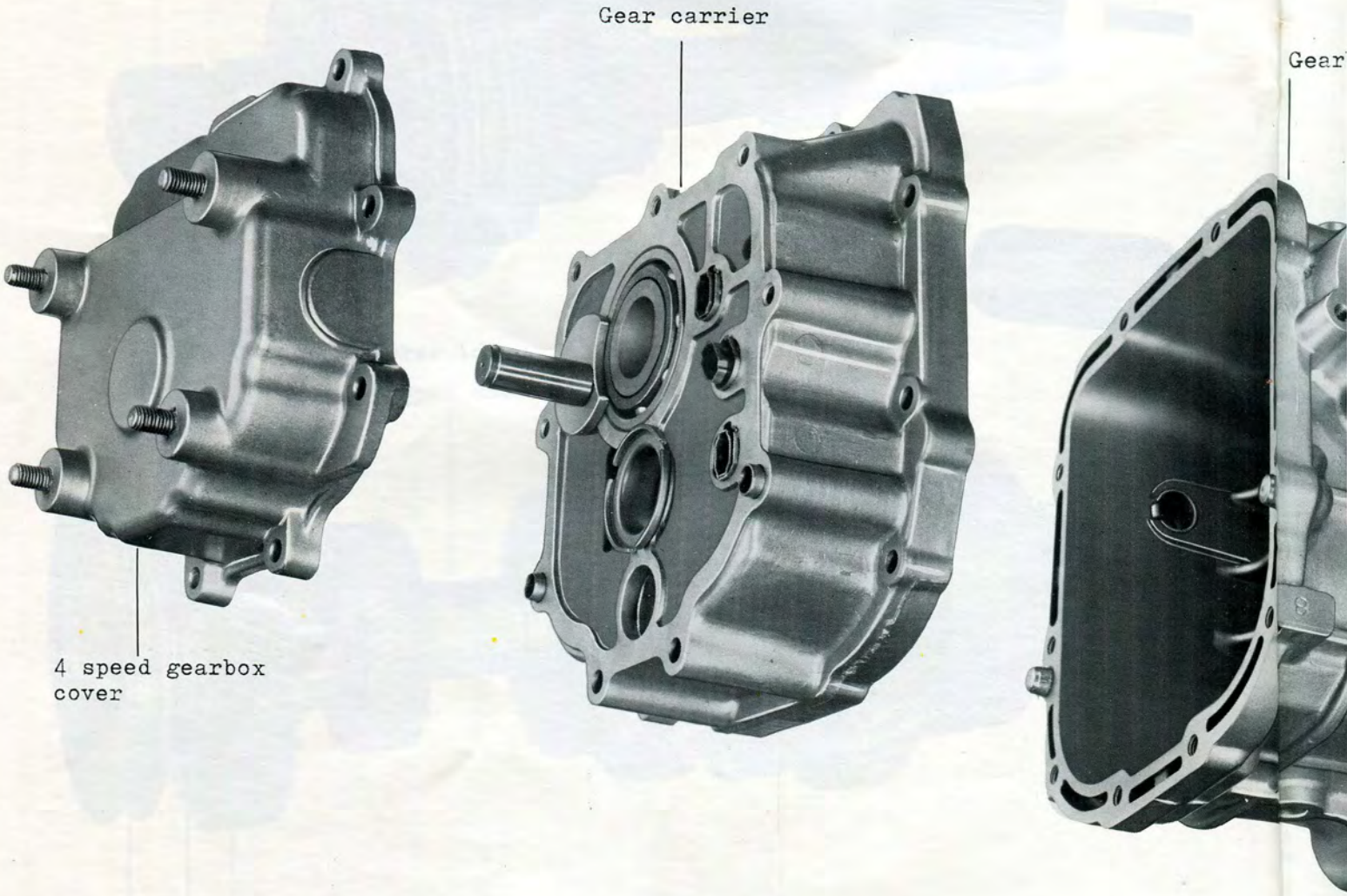
# 5 speed manual gearbox

In addition to the new engines, a five speed manual gearbox is also available as an optional extra for the Transporter. This gearbox has been designed to suit the requirements of the Transporter type vehicles.

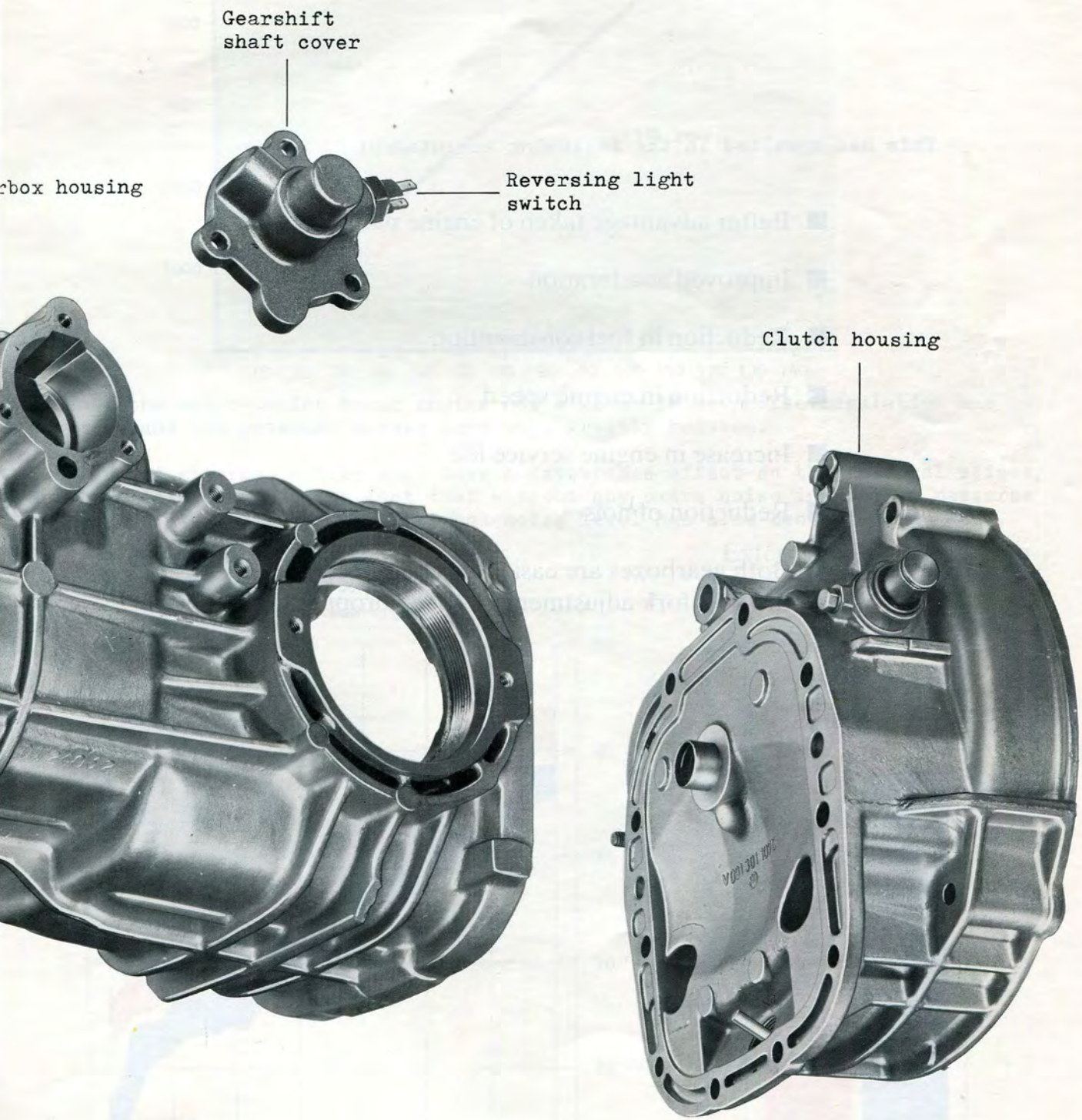
This has resulted in the following advantages:

- Better advantage taken of engine pulling power
- Improved acceleration
- Reduction in fuel consumption
- Reduction in engine speed
- Increase in engine service life
- Reduction of noises
- Both gearboxes are easier to repair because the shift fork adjustment has been dropped.

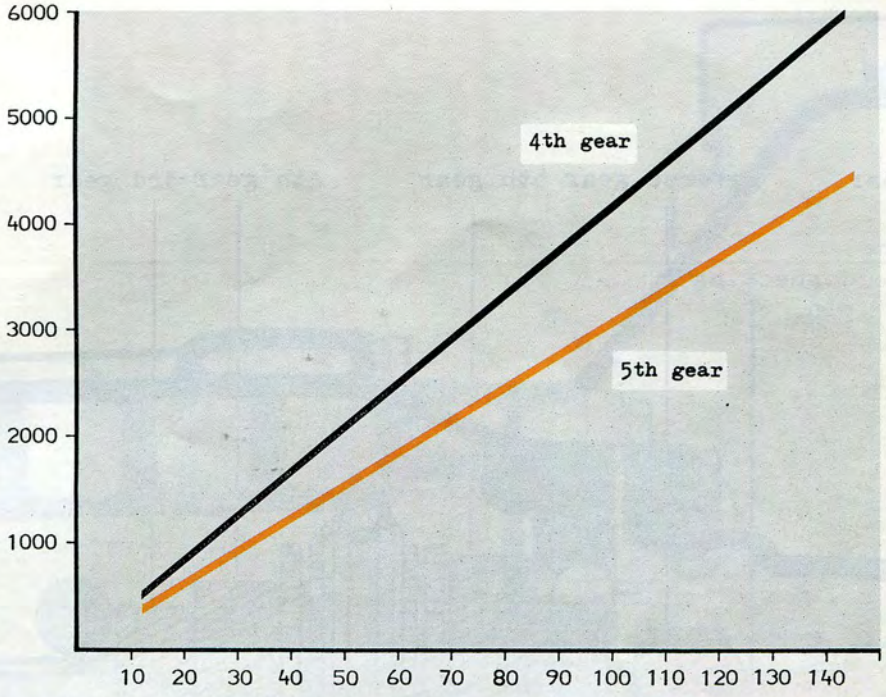
# Gearbox housing




The cover on the 5 speed manual gearbox is larger.


Gearshift
shaft cover
rbox housing
Reversing light
switch
Clutch housing

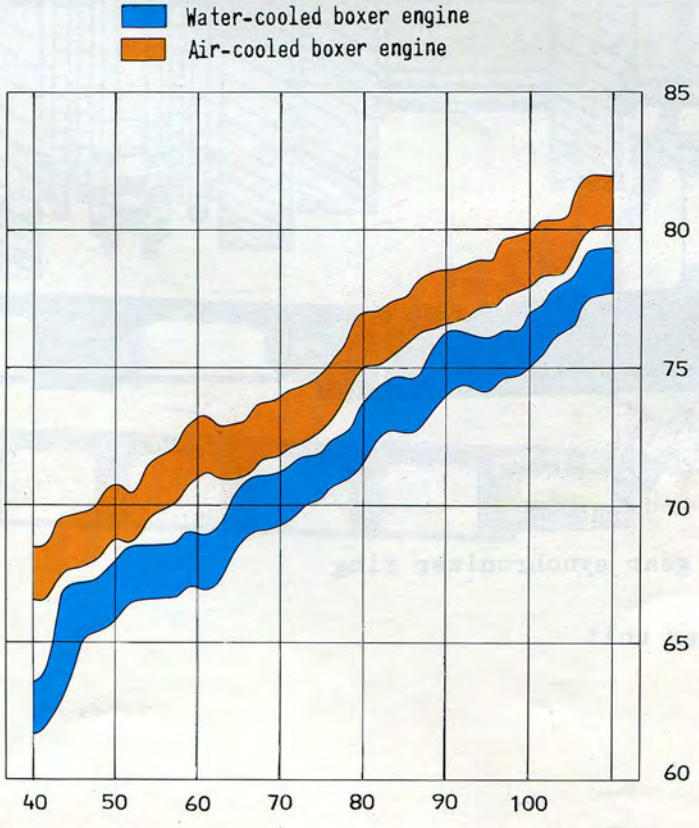
**When changing from 4th to 5th gear at a road speed of 100 km/h, the engine speed drops by about 700 rpm.**
**This improves the running quietness, the fuel consumption and wear are reduced, and the engine service life is increased.**



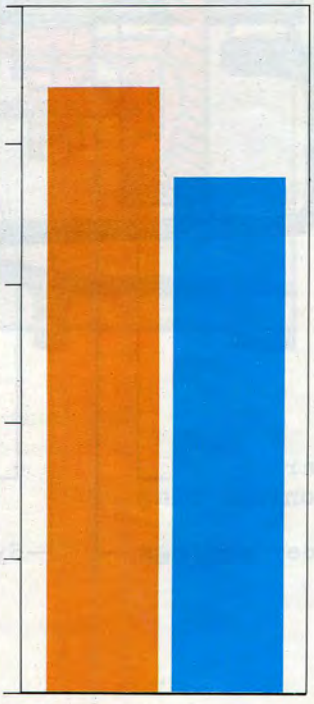

Because the water-cooled boxer engine has a water jacket, noise insulation has improved and the external noises have been greatly reduced.

The reduced external noises also have a favourable effect on the internal noises, and this is proven by the fact that without any extra noise insulation measures being put into operation, the internal noise level has also been reduced.

Internal noise comparison

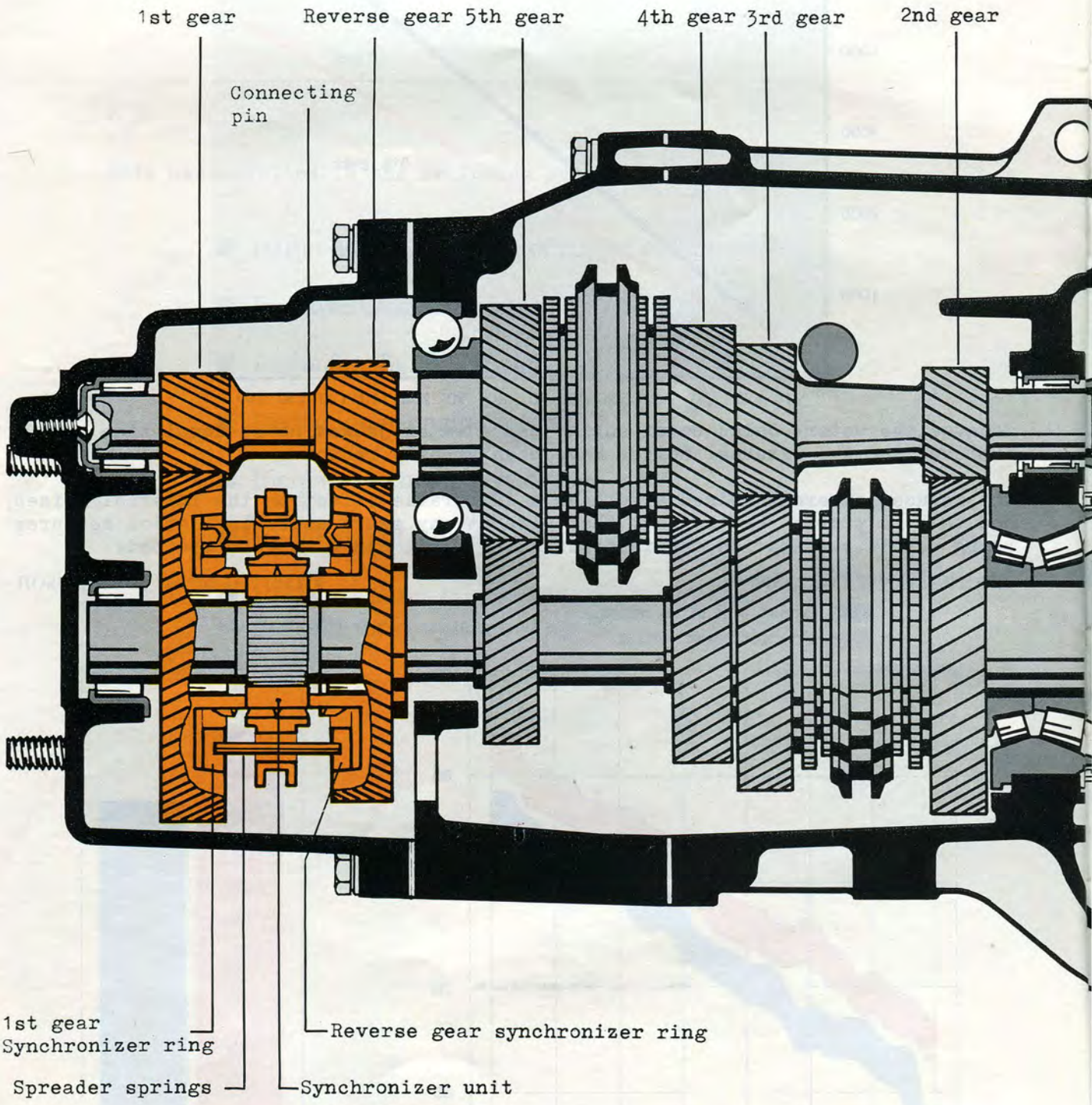


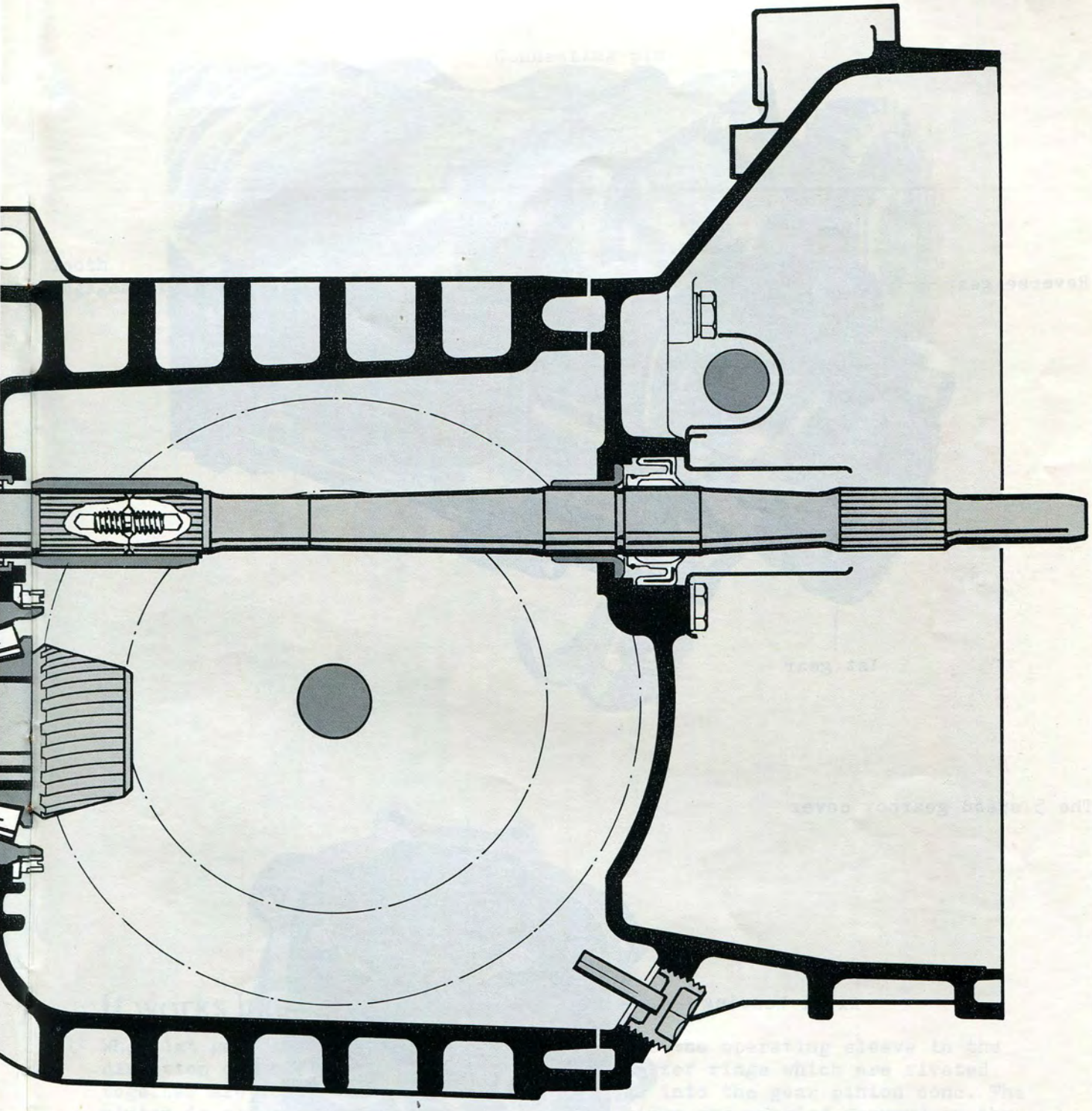

External noise comparison



# 5 speed manual gearbox

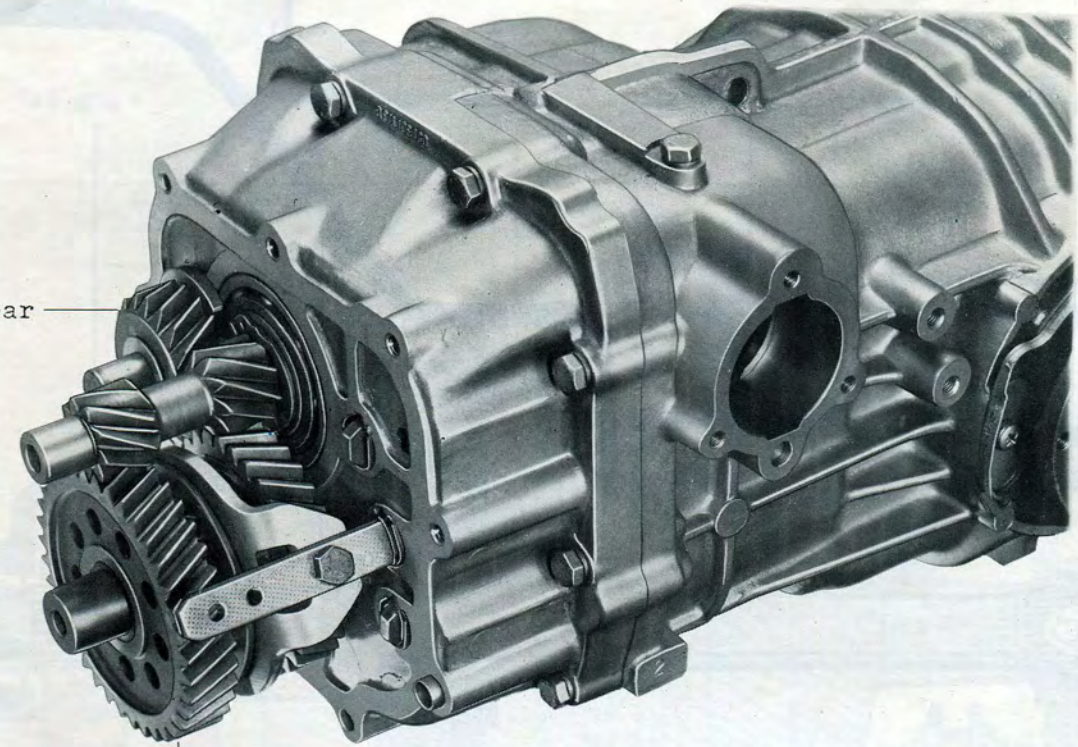
The 5 speed manual gearbox has been further developed from the 4 speed version. The 1st and reverse gears are located in the cover. The gears are engaged through baulk synchronizer units. The input and output shafts have been increased in length. Additional bearings are incorporated to support the shafts and pinions axially and radially.



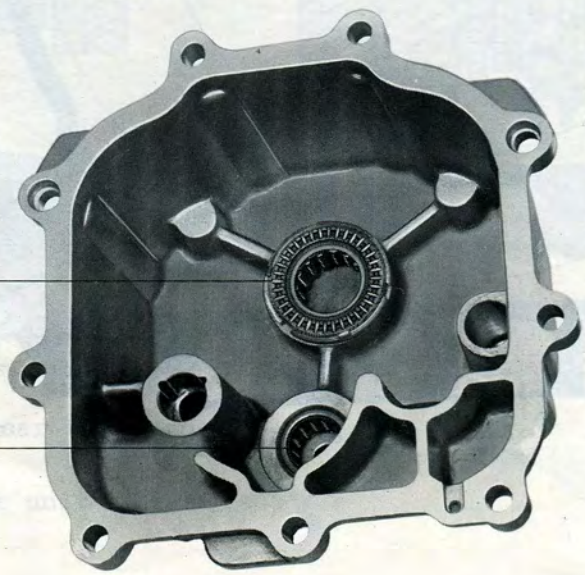


# 1st and Reverse gears

The 1st gear is also located underneath the cover. A sychronizer unit is incorporated between the 1st and reverse gears. The shift rod and fork complete the unit.




The 5 speed gearbox cover



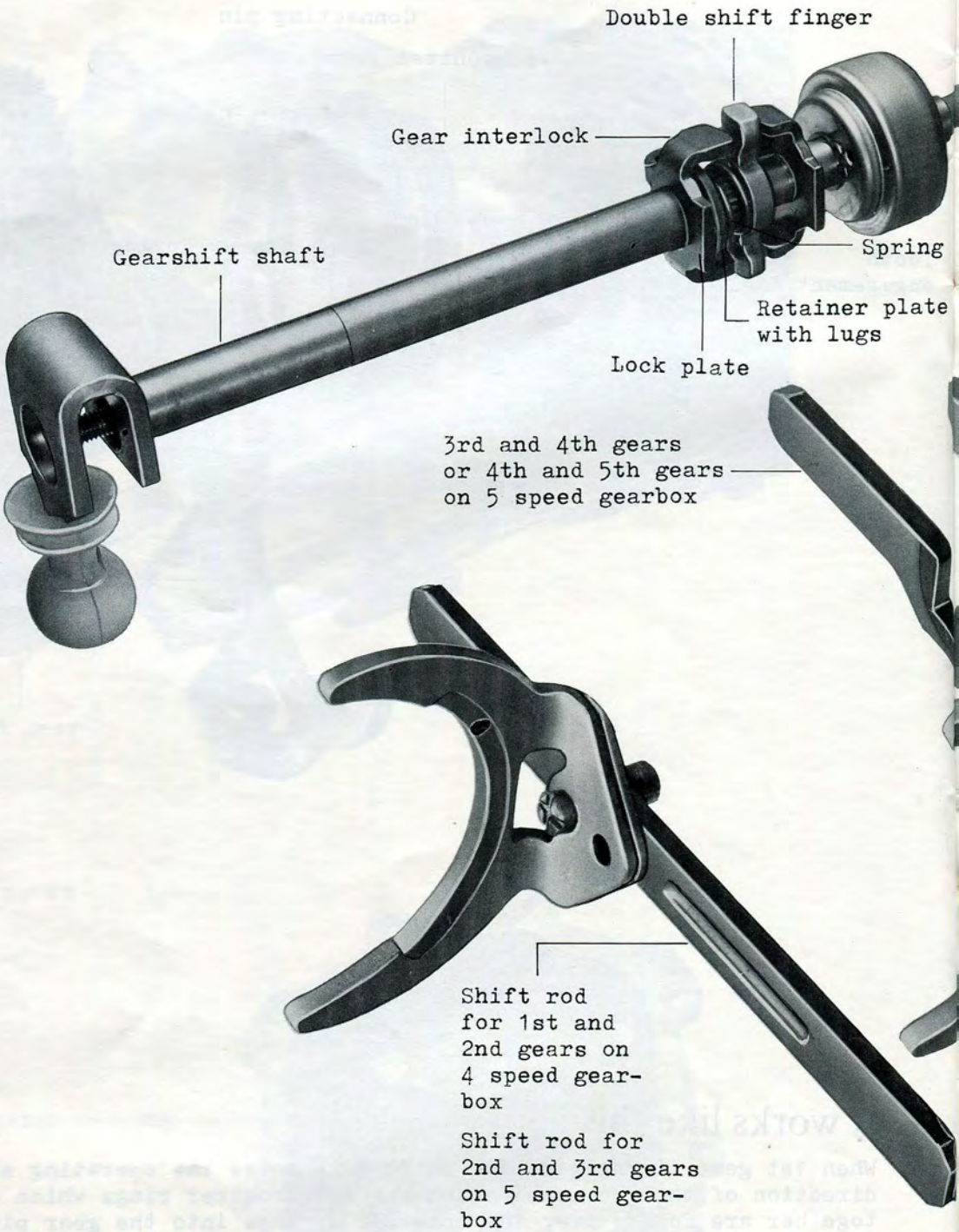
The 1st and reverse gears are engaged by means of external cone synchronization.


## It works like this:

When 1st gear is engaged, the shift fork moves the operating sleeve in the direction of the gear pinion and the synchronizer rings which are riveted together are forced over the spreader springs into the gear pinion cone. The pinion is slowed down and the synchronizer rings are carried forward on the connecting pins thus taking up the clearance.
Full synchronization takes place when the springs and the tapered ramps on the connecting pins are overcome.
The gear is fully engaged i.e. the transmission of power of assured once the tooth engagement angle on the operating sleeve and coupling splines have been passed and the teeth are fully engaged.

# Inner shift mechanism

The gear shift mechanism, for example the shift rods and forks have been simplified and they move more freely in their mountings.



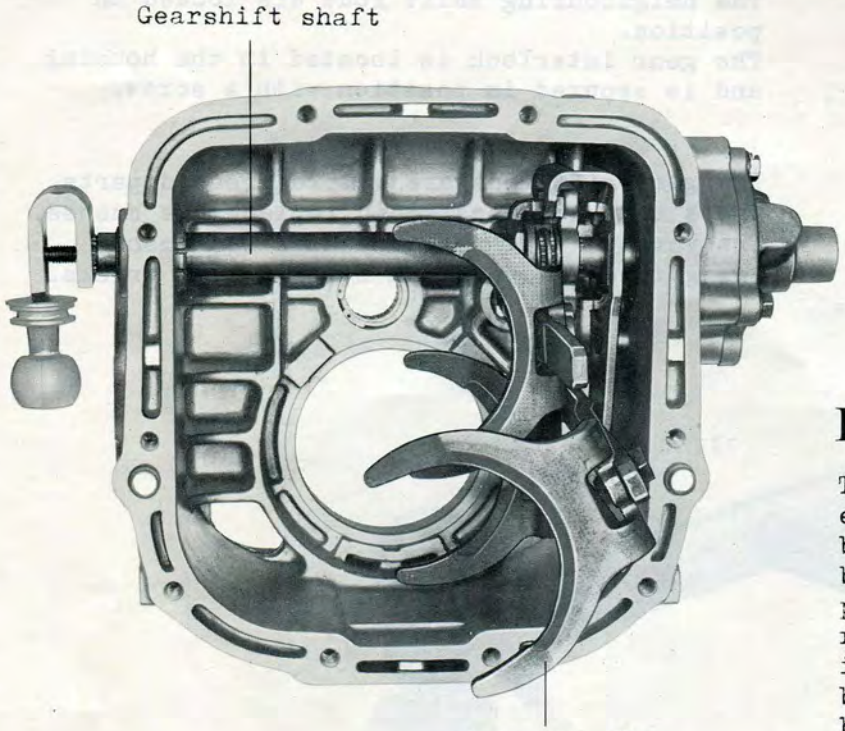

The individual gears are shifted by means of the gearshift shaft.

When a gear has been engaged, the lugs on the retainer plate engage in the appropriate recesses on the lock plate.

The gear interlock on the gearshift shaft ensures that only one shift rod can be moved. The neighbouring shift rods are locked in position.
The gear interlock is located in the housing and is secured in position with a screw.

The gearshift rods are simple pressed parts. These rods are located in replaceable bushes. The various parts of the shift rod bushes are guided in operation by balls and tracks.

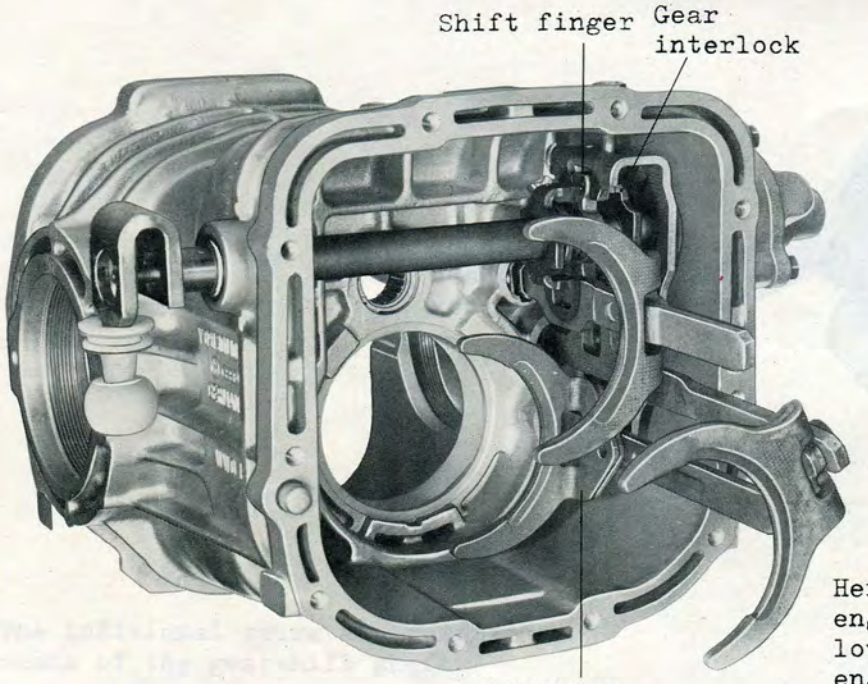
# Gearshift shaft, Shift rods




Reverse gear or
1st and R gears on
5 speed gearbox

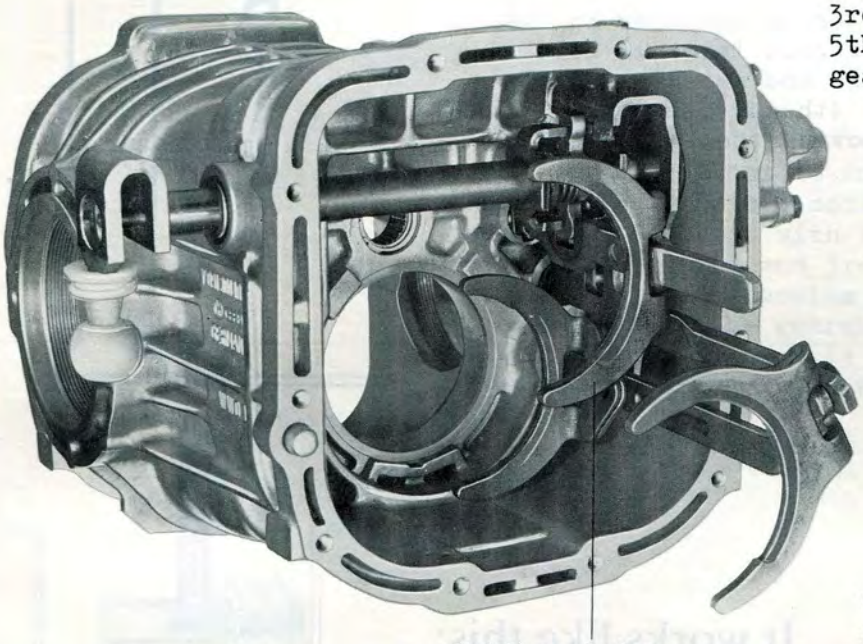
## It works like this:

The reverse gear shift rod is engaged by the lower shift finger because the gearshift shaft has been moved into the appropriate plane. On the 4 speed gearbox the reverse gear only can be selected in this plane. On the 5 speed gearbox 1st gear and reverse gear can be selected because both of these lie in the same plane. The other shift rods are locked in their respective positions.




1st and 2nd gear or
2nd and 3rd gear
on the 5 speed gearbox

Here the upper shift finger has engaged in the relay lever. The lower part of the lever has become engaged with the 1st and 2nd gearshift rod by means of the pin. In the case of the 5 speed gearbox the 2nd or 3rd gears could be selected.

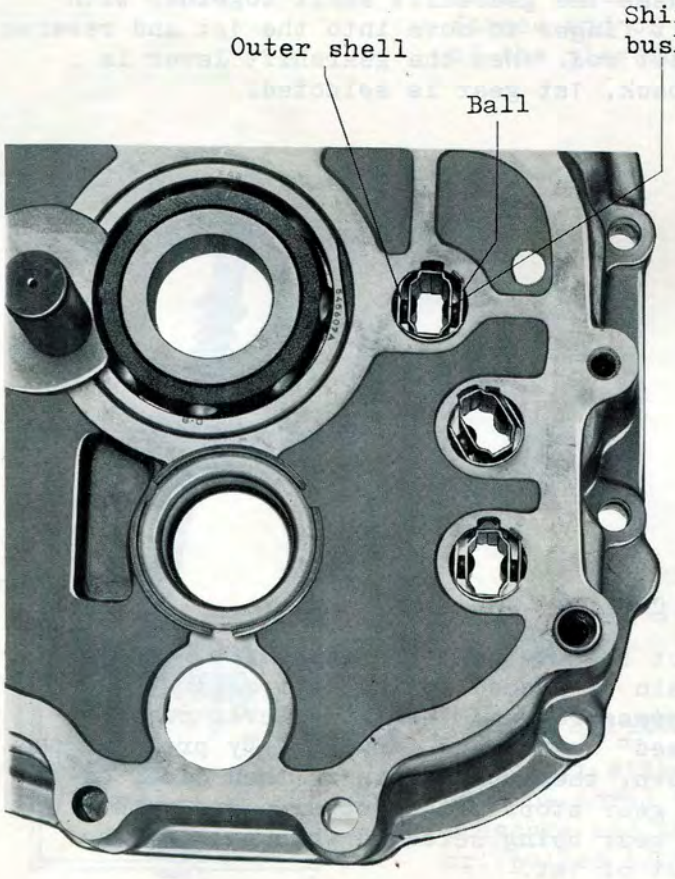


Shift rod for
3rd and 4th gears
or 4th and 5th gears

3rd and 4th gears or 4th and 5th gears on the 5 speed gearbox.

The lower shift finger has engaged with the shift rod for 3rd and 4th gears.
In the case of the 5 speed gearbox this would be the 4th and 5th gears.

Springs in the gearshift shaft housing hold the double shift finger in the 3rd and 4th gear plane on the 4 speed gearbox, but in the 2nd and 3rd gear plane on the 5 speed gearbox.




## Shift rod bush

To ease the gear selection operation the shift rod mountings have been improved.

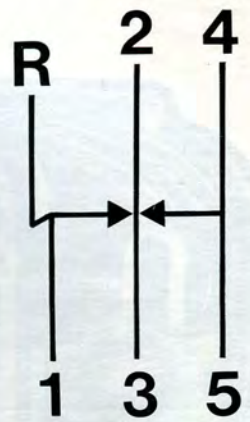
In the outer shell and in the shift rod bushes, located inside, there are grooves in each side which form tracks for the balls. When a gear is engaged, only a rolling resistance is felt.

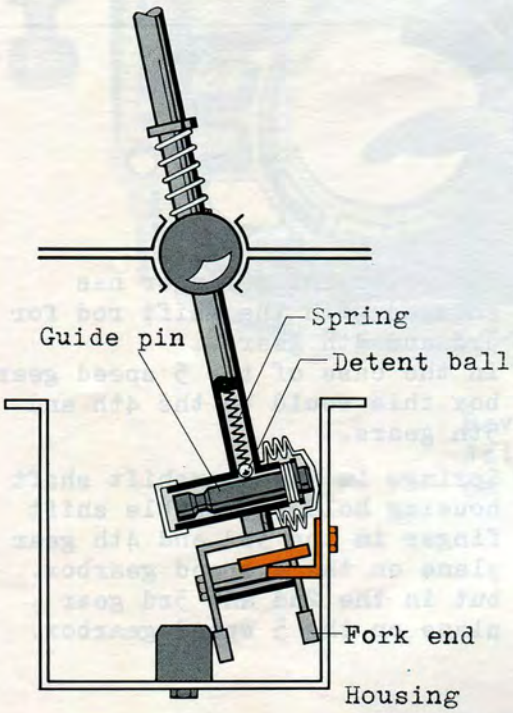
The shift fork adjustment could be discontinued in the case of the new gearboxes because the shift fork positions are determined by the operating sleeves.

# Gearshift linkage

## 5 speed gearbox

The individual gears must be selected as shown in the adjacent shift pattern. The gearshift lever is held in the 2nd-3rd gear plane by springs and detent ball. To select 1st and reverse gears or 4th and 5th gears springs must be overcome when moving the lever into the respective planes.

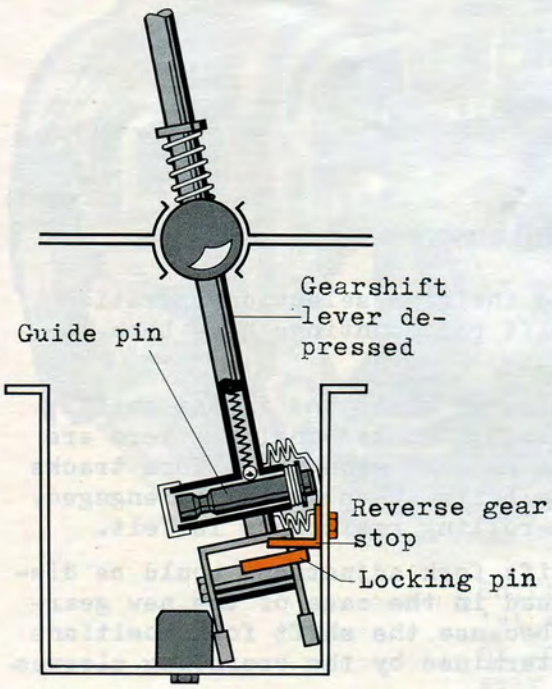



## It works like this:

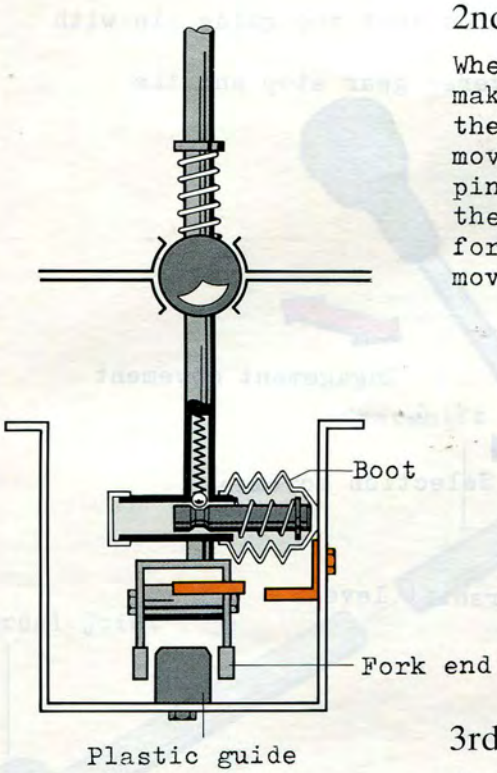
### 1st gear

To select 1st gear, the gearshift lever must be pushed to the left. When the detent ball lifts out of its groove against spring pressure the guide pin can move along its cylinder. The fork end can then move across to the right, making at the same time, a rotory movement. This movement causes the gearshift shaft together with the shift finger to move into the 1st and reverse gear shift rod. When the gearshift lever is pulled back, 1st gear is selected.




### Reverse gear

To select reverse gear the gearshift lever must once again be pushed to the left against the spring pressure, and then, the lever must be "depressed" and pushed forwards. By pressing the lever down, the locking pin is then clear of the reverse gear stop. This stop also prevents reverse gear being selected when pulling the lever out of 1st.

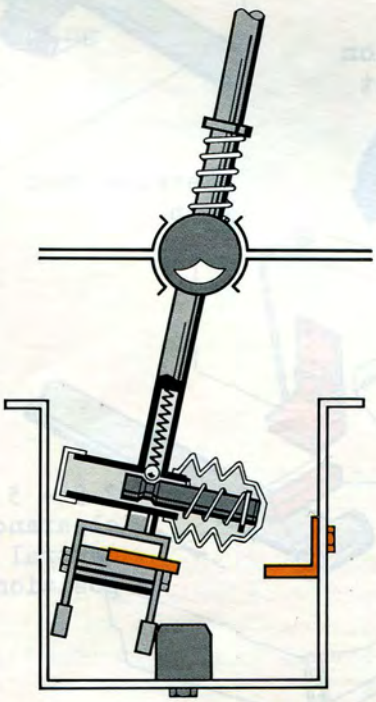



## 2nd Gear

When moving from 1st to 2nd gears the shift rod makes a slight rotory motion. When this happens, the gearshift shaft with the double shift finger moves into the 2nd and 3rd gear plane. The guide pin with the boot remains in light contact with the housing. If the gearshift lever is pushed forwards, the 2nd gear is engaged. The fork end moves either side of the plastic guide.

## 3rd gear

The 3rd gear is selected by pulling the lever to the rear, whilst this is in the central position. The forked end of the shift lever remains on either side of the plastic guide.



## 4th and 5th gears

To select either 4th or 5th gears the gearshift lever must be moved to the right against slight spring pressure and then, pushed fully forwards for 4th gear or, pulled to the rear to engage 5th gear.

# Gearshift linkage

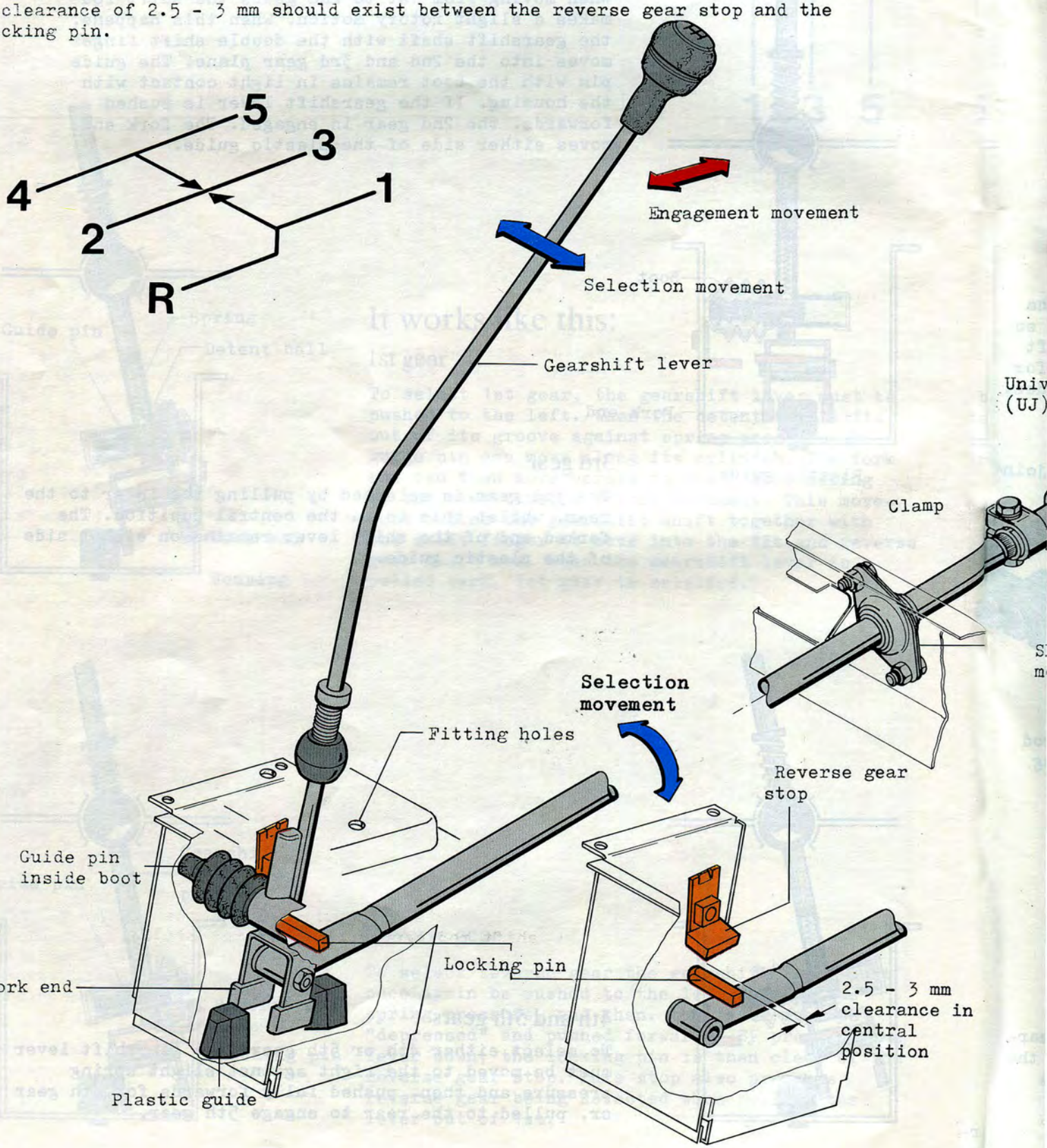
## 5 speed gearbox

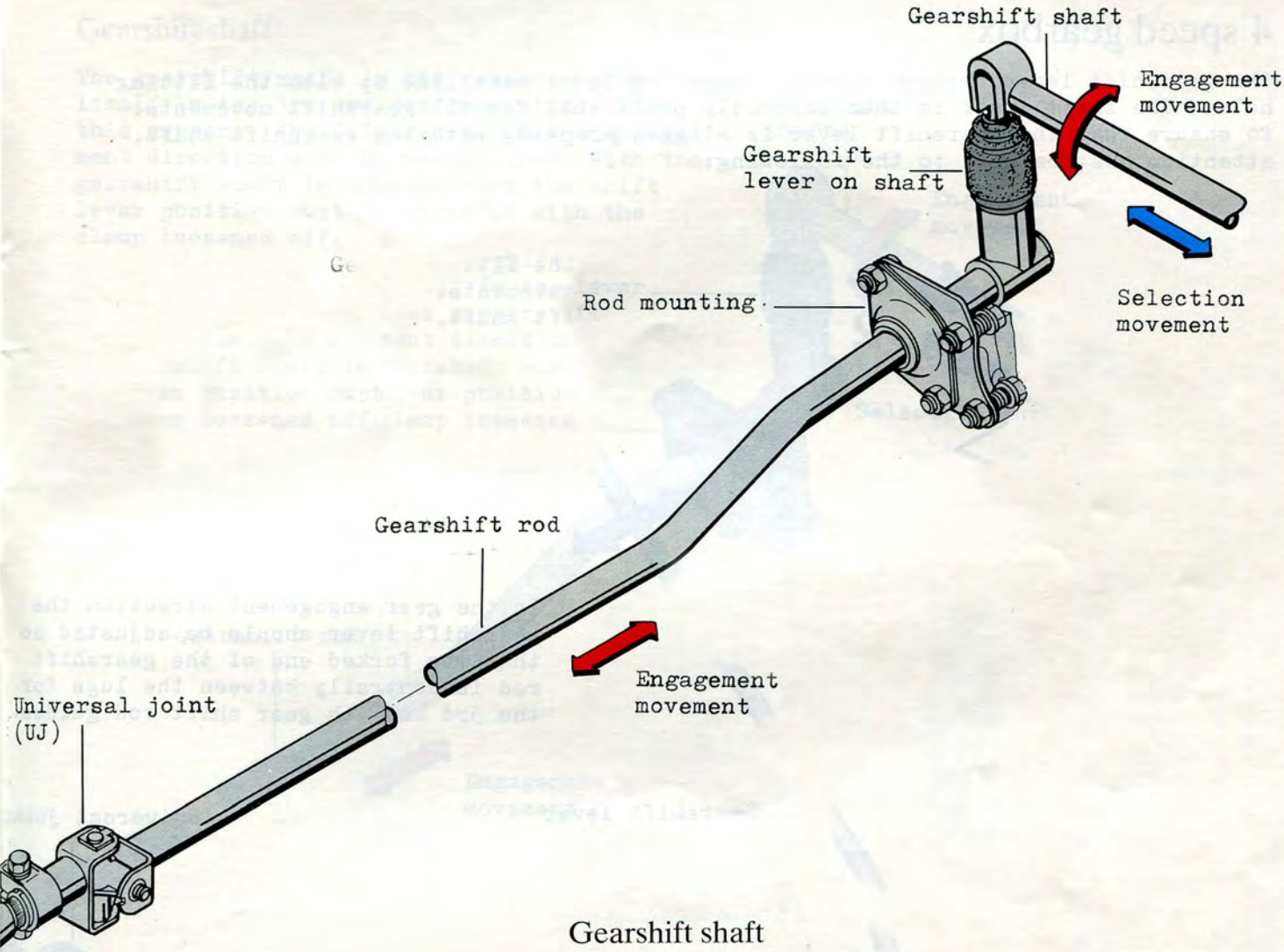
The gearshift lever together with its mounting must be fitted so that the fitting holes in the vehicle floor and in the gearshift lever bracket align with one another. The lever is then correctly located for all gear selection motions.

To ensure that the gearshift lever aligns probably to the gearshift shaft, attention must be paid to the following:

The lever should be positioned in the selection planes so that the guide pin with boot just makes contact with the housing wall.

A clearance of 2.5 - 3 mm should exist between the reverse gear stop and the locking pin.






## Gearshift shaft

In the neutral position, the shaft can be moved to and fro against spring pressure. The shaft always centralises itself however in the 2nd and 3rd gear plane.
When making an "engagement movement" a slight clearance (approx. 2 mm) can be felt on the gearshift lever. This clearance must be adjusted.
This positioning of the gearshift shaft and the previously described positioning of the gearshift lever are prerequisites before tightening the gearshift rod clamp.

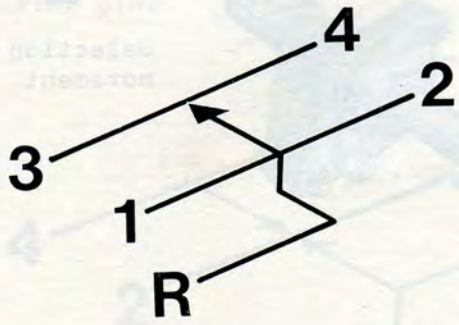
A UJ located approximately in the middle of the shift rod compensates for rod off-set.

Shift rod mountings on the gearbox and approx. half way along the vehicle chassis provide the necessary support.

# Gearshift linkage

## 4 speed gearbox

The gearshift lever bracket together with the lever must line up with the fitting holes. The shift lever is then correctly positioned for all gearshift movements. To ensure that the gearshift lever is aligned **properly** with the gearshift shaft, attention must be paid to the following:





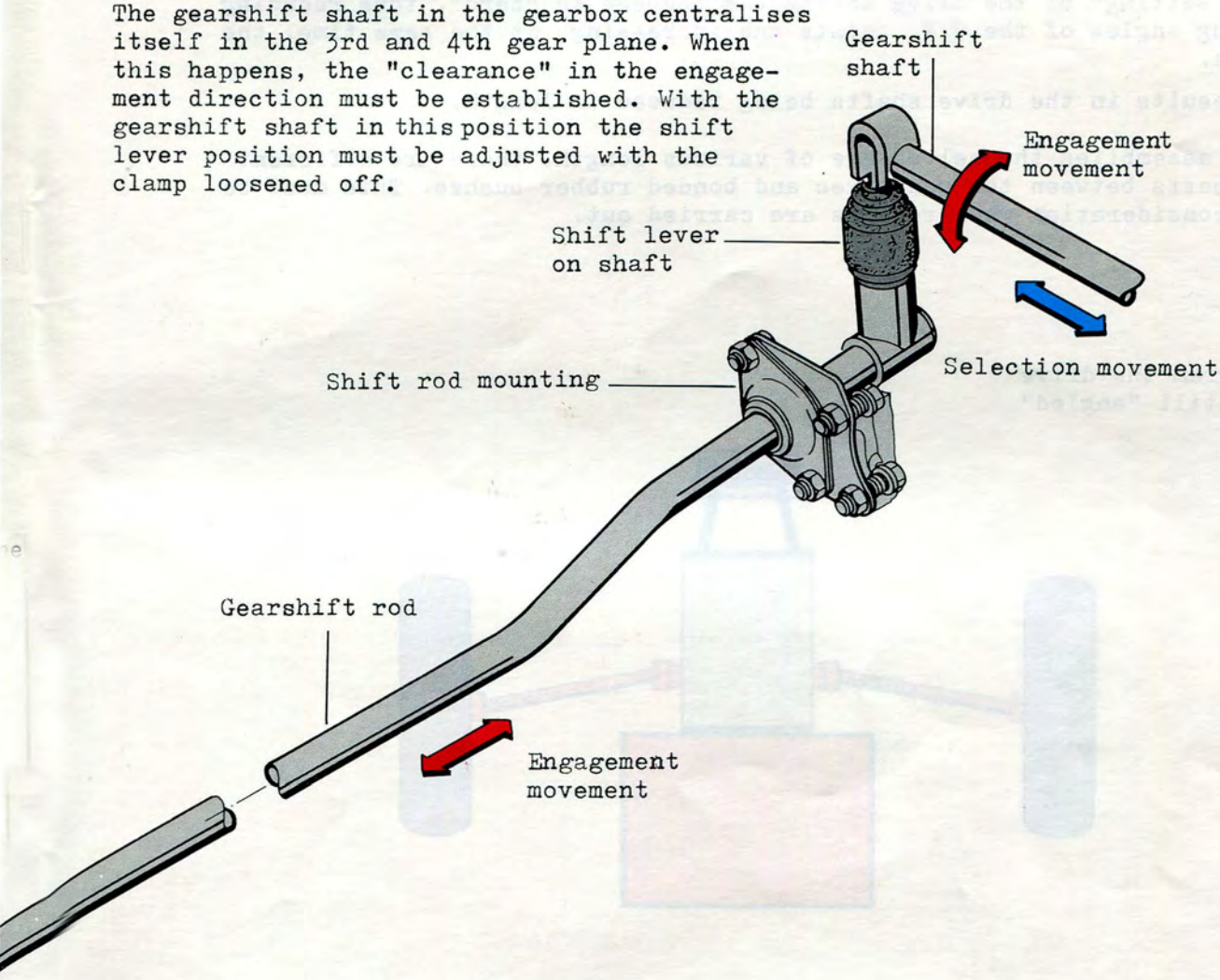


In the gear engagement direction the gearshift lever should be adjusted so that the forked end of the gearshift rod is centrally between the lugs for the 3rd and 4th gear shift rod guides.

In the gear selection direction the gearshift lever should be moved so far to the right that a clearance of 23 mm exists between the reverse gear stop and the shift rod fork.

## Gearshift shaft

The gearshift shaft in the gearbox centralises itself in the 3rd and 4th gear plane. When this happens, the "clearance" in the engagement direction must be established. With the gearshift shaft in this position the shift lever position must be adjusted with the clamp loosened off.




When the gearshift shaft and the shift rod are in the correct positions the clamp should be tightened.

# Gearbox mountings

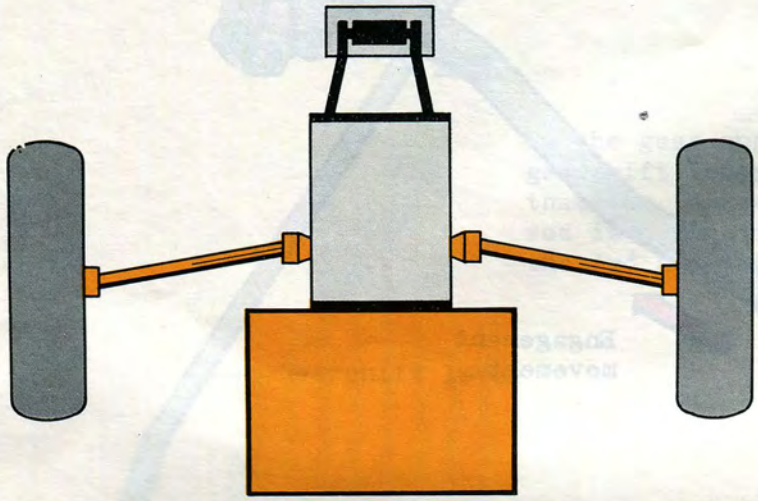
Because the engines of the new generations are shorter, the engine/gearbox unit could be positioned further to the rear.
The "angled setting" of the drive shafts was reduced to "zero", thus reducing the operating angles of the C.V. joints and increasing, at the same time, the service life.

This also results in the drive shafts being reduced in length.

Because the assemblies themselves are of various length, there are different connecting parts between the gearboxes and bonded rubber bushes. This must be taken into consideration when repairs are carried out.

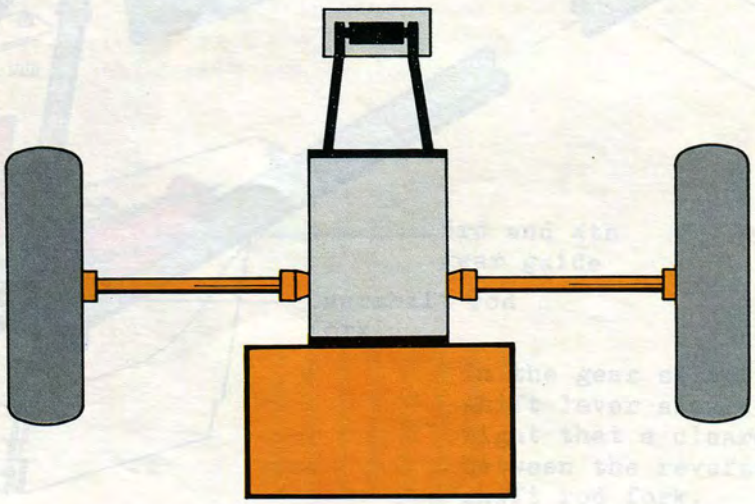
## Old

In this diagram the drive shafts are still "angled" forwards.



## New

Here the engine/gearbox assembly has been moved back and the drive shafts are at 90° to the wheels.



The following Self Study Programmes are available:

- Automatic gearboxes for Volkswagen and Audi.
- LT.
- K-Jetronic.
- LT diesel engine.
- Audi 100/77.
- VW 1.5 litre diesel engine.
- Power assisted steering.
- Audi 100/5E.
- Heating and air conditioning regulation in the Audi 100.
- Self levelling equipment in the Audi 100.
- Air conditioner system on the Audi 100.
- 5 Cylinder diesel engine.
- Cruise control system in the Audi 100.
- LT 40/45 6 Cylinder diesel engine.
- 5-speed manual gearbox 020.
- The new Transporter.
- Transistorized ignition system with idle stabilization.
- Sliding roofs.
- 5-speed manual gearbox 016.
- Iltis.
- CAV Distributor type injection pump.
- Carburetor 1-B/2-B.
- 5-speed Manual Gearbox 013.
- Audi 200.
- Pneumatic Cruise Control System.
- Keihin Carburetor.
- Gearshift/Consumption Indicator, Stop/Start System.
- Anti-locking Brake System on Audi 200.
- CAV Distributor Type Injection Pump with Mechanical Governor.
- Volkswagen Transporter with Diesel Engine.
- Audi Quattro.
- Audi Quattro – pneumatic operation of differential locks.
- Polo from model year 1982.
- Automatic gearbox for diesel engines.
- Turbo diesel.
- K-Jetronic.
- Modifications for Model Year 1983.