

# Service Manual

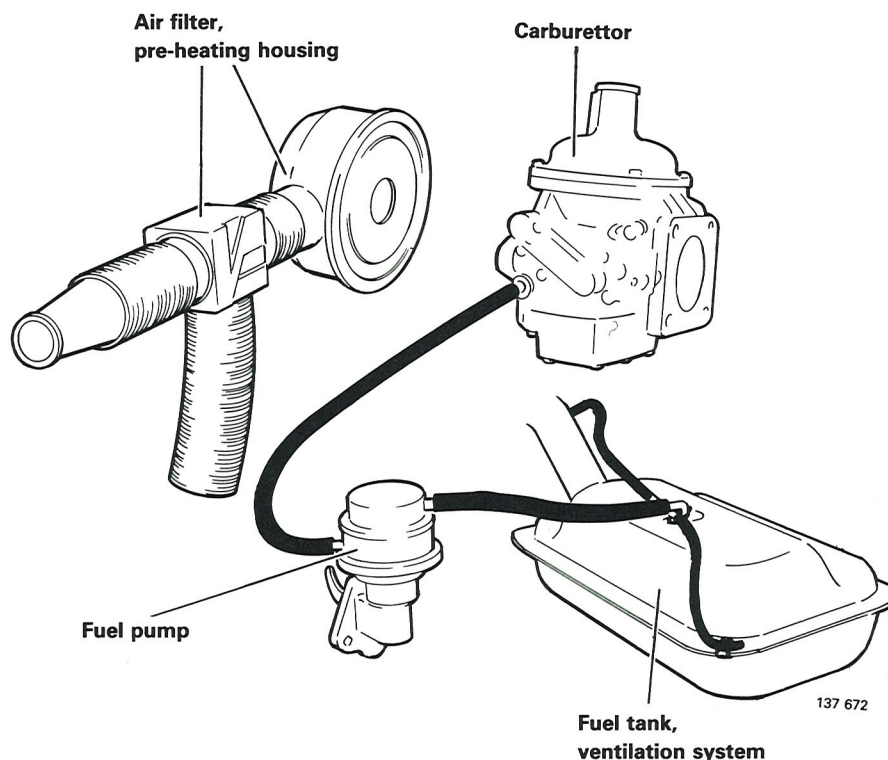
Section 2 (23)

## Repairs and Maintenance

Fuel systems,  
carburetted  
engines  
240, 260  
1975–1984

**VOLVO**





This manual covers the fuel system of the following carburetted engines:

Engine type	Model year	Carburettor
B 17 A	1979–1984	Solex (Zenith) 175 CD
B 19 A	1977–1984	Solex (Zenith) 175 CD
B 19 K	1984	Solex-Cisac
B 20 A	1975–1976	Solex (Zenith) 175 CD alt SU-HIF6
B 21 A	1975–1984	Solex (Zenith) 175 CD alt SU-HIF6* alt Pierburg (DVG) 175 CDUS**
B 23 A	1981–1984	Pierburg (DVG) 175 CDUS
B 27 A	1976–1979	SU-HIF6
B 28 A	1980–1982	SU-HIF6

\* Discontinued 1982 in Canada, 1981 in other markets

\*\* Introduced 1978 in United Kingdom. Also in other markets after 78.

Volvos are sold in versions adapted for different markets. These adaptations depend on many factors including legal, taxation and market requirements.

This manual may therefore show illustrations and text which do not apply to cars in your country.

**Order number: TP 11740/2**  
Supersedes: TP 11889 (Canada)  
TP 11740/1 (Other markets)

We reserve the right to make alterations without prior notification

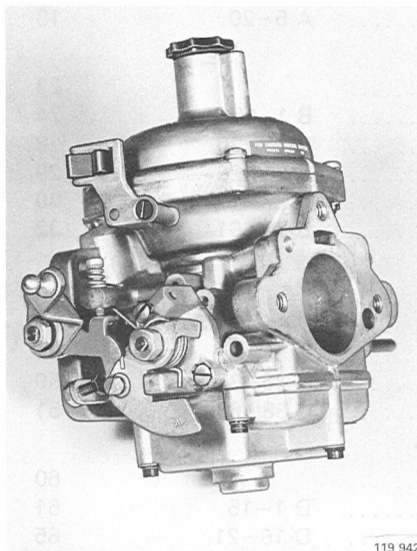


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## Carburettors



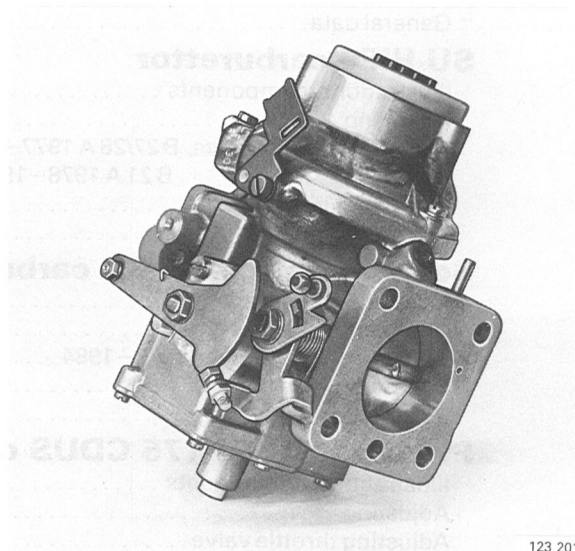
119 942

### Solex 175 CD

Type fitted to B 20 A shown above

Pre-1983 175 CD carburettors are called Zenith. Old name is shown in parenthesis: Solex (Zenith) 175 CD throughout this manual.

Occasionally called Stromberg carburettor.

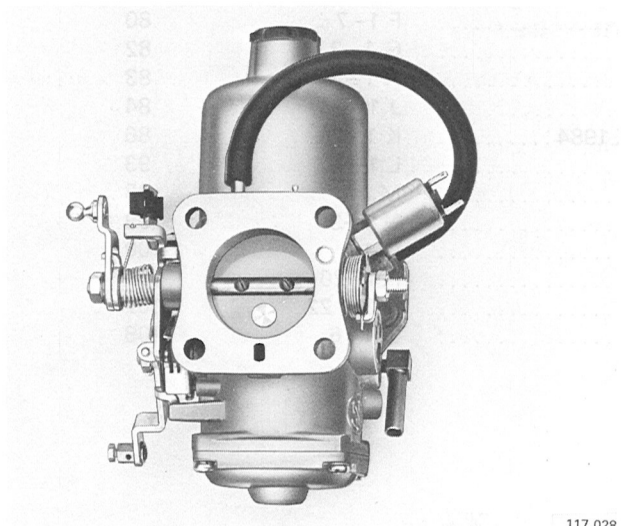


123 201

### Pierburg 175 CDUS

Type fitted on B 21 A 1978 shown above

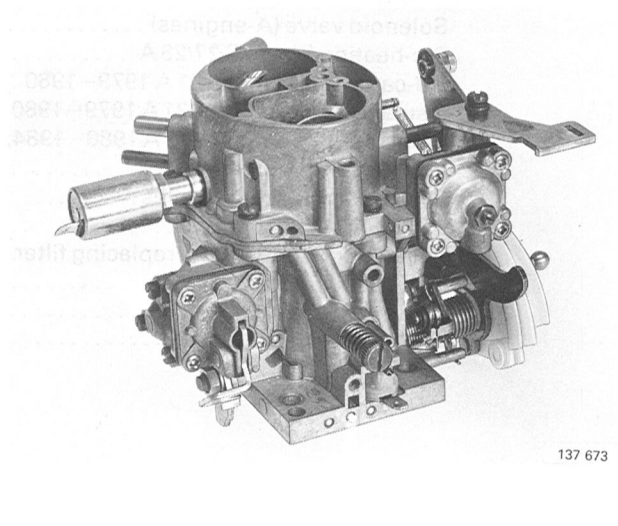
Name changed from DVG to Pierburg in 1983. Old name shown in parenthesis: Pierburg (DVG) 175 CDUS throughout manual.



117 028

### SU-HIF6

B 27 A 1976 version shown above



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### Solex-Cisac

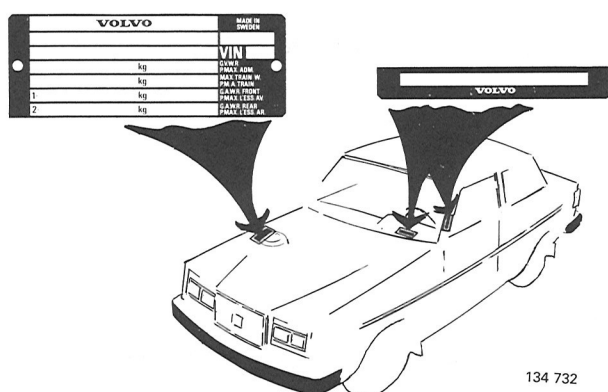
Type fitted on B 19 K 1984 shown above



# Specifications

## VEHICLE IDENTIFICATION

Only identification plates and decals referring to fuel system are dealt with in this section.



### Type designation plate

Attached to right inside wing.

Contains vehicle identification number (type designation).

Note that type varies with model year. 1981 plate shown adjacent.

### Vehicle identification number (type designation)

USA and Canada only. Visible from outside of car.

—1979: attached to left windscreen pillar

1980—: mounted on top of dashboard.

### USA/Canada

—1980: **VC 244 45 L 1 000000**

1981—: **YV1 AX 45 4X B 1 000000**

### Other markets

—1980: **245 45 L 1 000000**

1981—: **YV1 244 46 1 B 1 000000**

Engine type

Chassis  
number

134 733

Model year

### Coding of vehicle identification number

Coding varies with model year and market. Numbers shown adjacent are only examples.

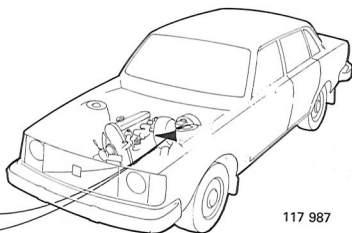
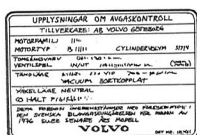
#### Engine type

11 = B 17 A  
(B 20A 1975–1976)  
21 = B 19 A  
23 = B 19 K  
41 = B 21 A  
61 = B 27 A  
62 = B 28 A  
81 = B 23 A

#### Model year

B = 1975  
E = 1976  
H = 1977  
L = 1978  
M = 1979  
A = 1980  
B = 1981  
C = 1982  
D = 1983  
E = 1984





117 987

## Exhaust gas information

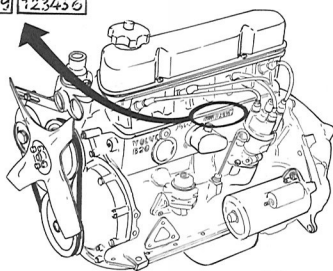
Sweden, Switzerland (1983–), Australia, USA and Canada only.

Attached to left inside wing.

Contains details of idle speed, valve clearance, ignition setting and CO content.

## Serial and part numbers of engine

789 123456

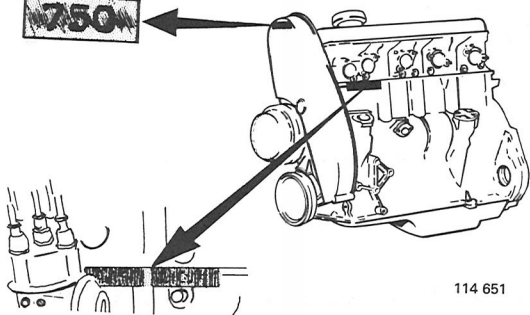


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### B 20

Stamped in left side of cylinder block, behind oil trap.

750



114 651

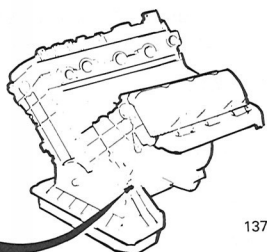
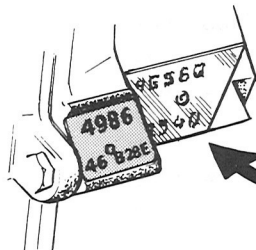
### B 17–B 19–B 21–B 23

Stamped in left side of cylinder block, behind distributor.

With effect from 1977: a decal on timing gear cover shows last three digits of part number.

### B 27–B 28

Stamped in the plate in front of oil filter.

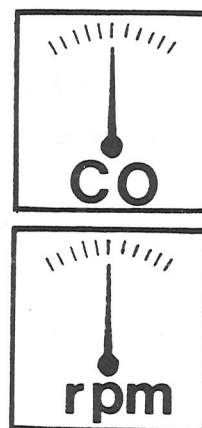


137 675



## CO-CONTENT, IDLE SPEED DATA

- When checking/adjusting CO-content and idle speed on vehicles with automatic transmission always engage neutral "N" and apply the parking brake
- CO-content should be checked/adjusted when engine is warm and idling
- If CO-content is not according to specifications i.e. check values, it must be adjusted to setting value
- If CO is according to specifications it is not necessary to adjust the engine providing that it runs satisfactorily
- Vehicles equipped with air pump and Pulsair system: disconnect and plug hose when checking/adjusting CO/idle.



135 528

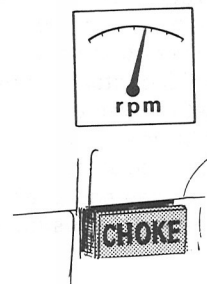
Engine type	Year	Market	CO % Setting (checking)	Idle speed r/s (r/min)
<b>B 17 A</b>	1979–1984		2.0 (1.5–3.0)	15.0 (900)
<b>B 19 A</b>	1977 1978  1979–1984	Italy Other markets	3.0 (2.0–4.0) 2.5 (2.0–3.5) 2.0 (1.5–3.0) 2.0 (1.5–3.0)	14.2 (850) 15.0 (900) 15.0 (900) 15.0 (900)
<b>B 19 K</b>	1984		1.5 (1.0–2.5)	15.0 (900)
<b>B 20 A</b>	1975 1976		2.5 (1.5–4.0) 1.5 (0.5–4.0)	11.7 (700) 11.7 (700)
<b>B 21 A</b>	1975–1977 1978  1979–1980  1981  1982–1983  1984	Sweden* Australia, Canada Other markets Australia, Canada Other markets Canada Other markets Canada Other markets Canada Other markets Canada Scandinavia, Switzerland, Australia Other markets	2.5 (1.5–4.0) 2.0 (1.5–3.0) 4.5 (3.5–5.5) 2.5 (2.0–3.5) 3.5 (2.5–4.0) 2.0 (1.5–3.0) 3.5 (2.5–4.0) 2.0 (1.5–3.0) 3.0 (2.5–4.0) 2.0 (1.5–3.0) 3.0 (2.5–4.0) 2.0 (1.5–3.0) 2.0 (1.5–3.0) 2.0 (1.5–3.0) 1.5 (1.0–2.5)	14.2 (850) 15.0 (900) 15.0 (900) 15.0 (900) 15.0 (900) 15.0 (900) 15.0 (900) 15.0 (900) 15.0 (900) 15.0 (900) 15.0 (900) 15.0 (900) 15.0 (900) 15.0 (900) 15.0 (900)
<b>B 23 A</b>	1981–1984		2.0 (1.5–3.0)	15.0 (900)
<b>B 27 A</b>	1976 1977 1978–1979		2.5 (1.5–4.0) 2.5 (1.5–4.0) 2.5 (2.0–3.5)	14.2 (850) 15.0 (900) 15.0 (900)
<b>B 28 A</b>	1980–1982		2.5 (2.0–3.5)	15.0 (900)

\* 2650 vehicles with manual gearbox have been assembled with engine type 498528. All other manual gearbox vehicles have engine type 498550. Data for engine type 498528 is same as 1977 models.

## FAST IDLE

Value applies to warm engine

B 20	18.3–25.0 r/s (1100–1500 r/min)
B 17 A–B 19 A–B 21 A–B 23 A	20.8–22.5 r/s (1250–1350 r/min)
B 27 A 1976–1977	20.0–26.7 r/s (1200–1600 r/min)
1978–1979	23.3–26.7 r/s (1400–1600 r/min)
B 28 A	20.8–22.5 r/s (1250–1350 r/min)
B 19 K, dimension between cam disc and fast idle adjustment screw (choke depressed)	1.9 mm

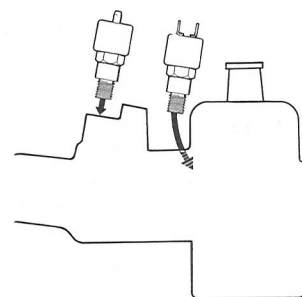


137 676

## SOLENOID VALVE

Engine type	Solenoid valve	
	P/N	Marking
<b>B 20 A</b>	460282-7	2.2
<b>B 17–23 A</b> 1975–1976	1219792-7 <sup>1)</sup>	3.2
	1266026-2	3.2
	1266004-9	2) <sup>2)</sup>
<b>B 19 K</b> 1984	1270010-0	2) <sup>2)</sup>
<b>B 27–28</b> 1976	1219792-7 <sup>1)</sup>	3.2
	1266004-9	2) <sup>2)</sup>

**B 17–23 A** 1978–1984 1975–1977  
**B 27/28 A** 1977–1982 1976



137 678

### Remarks:

<sup>1)</sup> Superseded by P/N 1266026-2

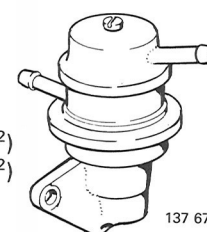
<sup>2)</sup> Solenoid with **one** connector

## FUEL PUMP

Fuel pressure measured at same level as pump:

B 17–23 at 16.6 r/s (1000 r/min)	15–27 kPa (0.15–0.27 kp/cm <sup>2</sup> )
B 27–28 at 50 r/s (3000 r/min)	15–27 kPa (0.15–0.27 kp/cm <sup>2</sup> )

15–27 kPa (0.15–0.27 kp/cm<sup>2</sup>)  
 15–27 kPa (0.15–0.27 kp/cm<sup>2</sup>)

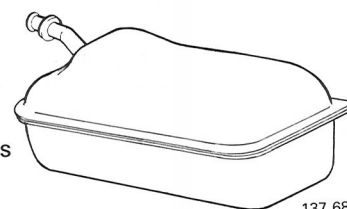


137 679

## FUEL TANK

Volume, total	60 litres
expansion volume	5 litres
Red section of fuel gauge	approx. 8 litres

60 litres  
 5 litres  
 approx. 8 litres



137 680

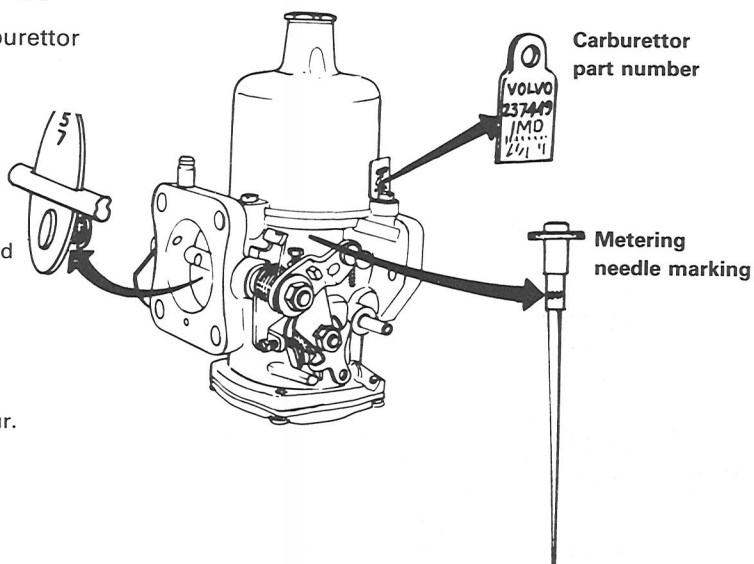


## CARBURETTOR

### Identification of carburettor, metering needle and throttle valve

SU-HIF6 carburettor shown adjacent. Other carburettor types are marked in similar manner.

**Throttle valve marking**  
(Only SU carburettors and throttle valves with relief valves are marked)  
Throttle valves with relief valves are only fitted on certain models.  
Also type variations occur.



119 943

### Solex (Zenith) 175 CD carburettor

#### Metering needle designation

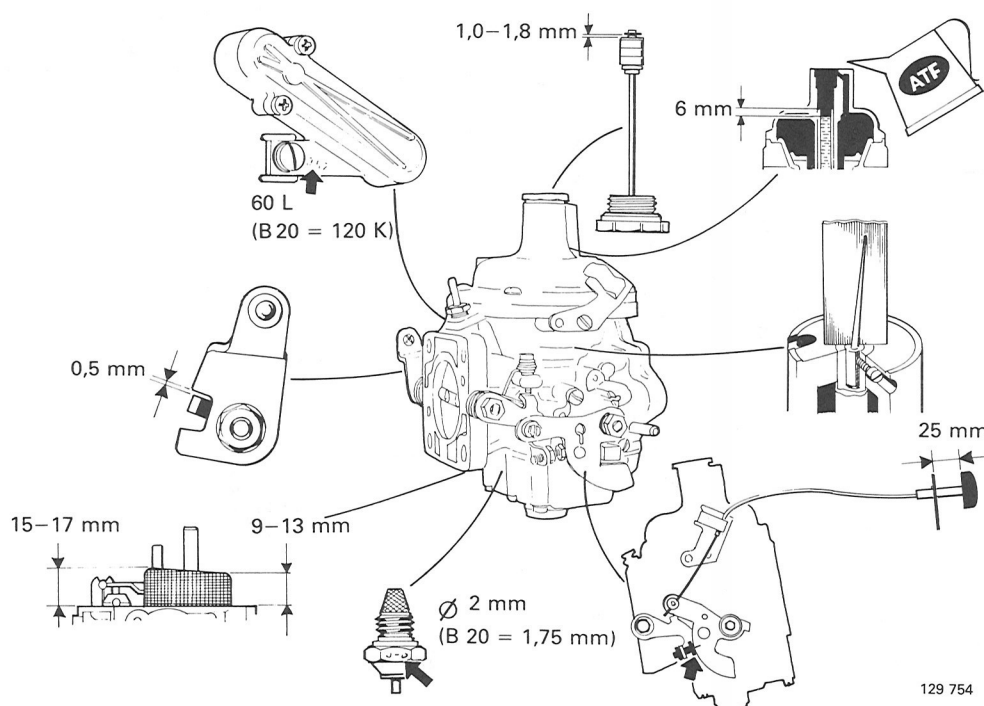
<b>B 17/19 A</b>	1977–1980	B1EE
	1981–1984	B1FE
<b>B 20 A</b>	1975–1976	B1CC

<b>B 21 A</b>	1975	B1ED <sup>1)</sup>
	1976–1980	B1EE
	1981–1984	
	Sweden, Australia, Canada	B1FD
	Other markets <sup>2)</sup>	B1EE

#### Remarks:

<sup>1)</sup> Early type = B2BB

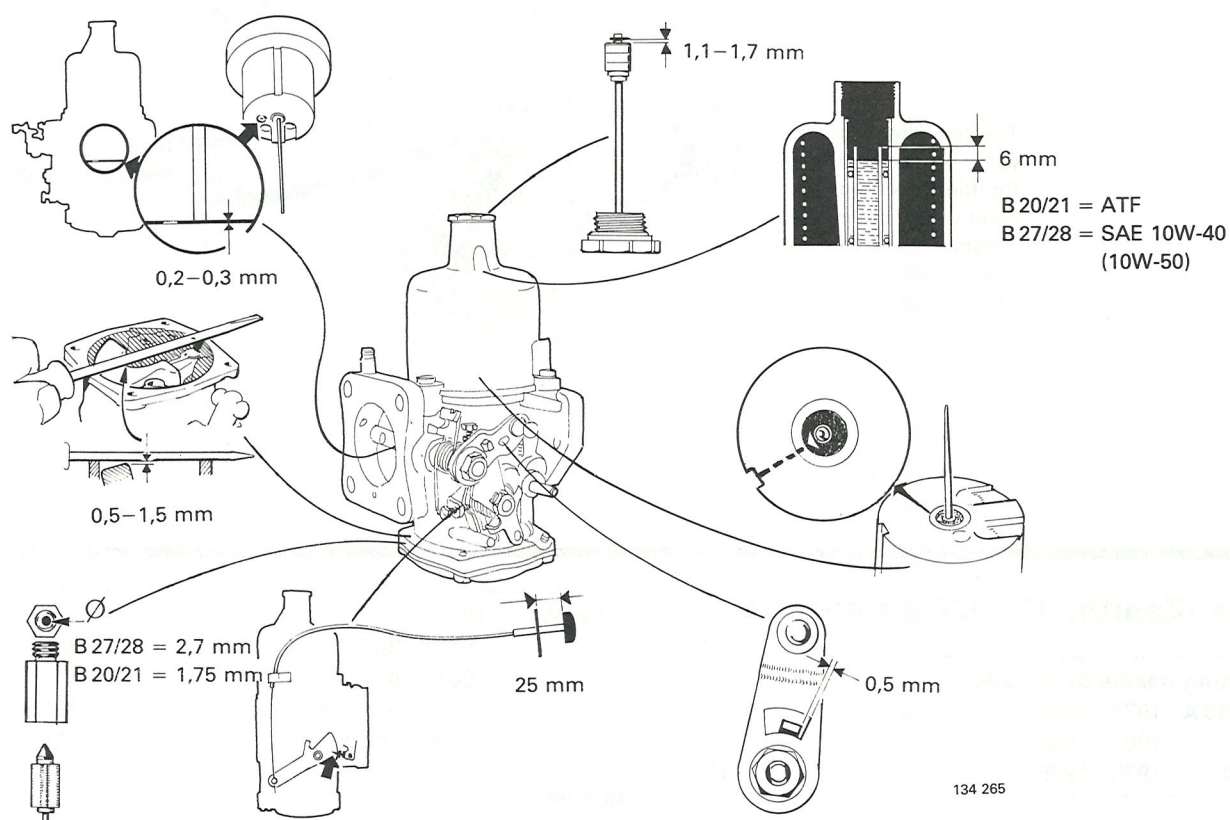
<sup>2)</sup> Switzerland 1983–1984 = B1FD



129 754

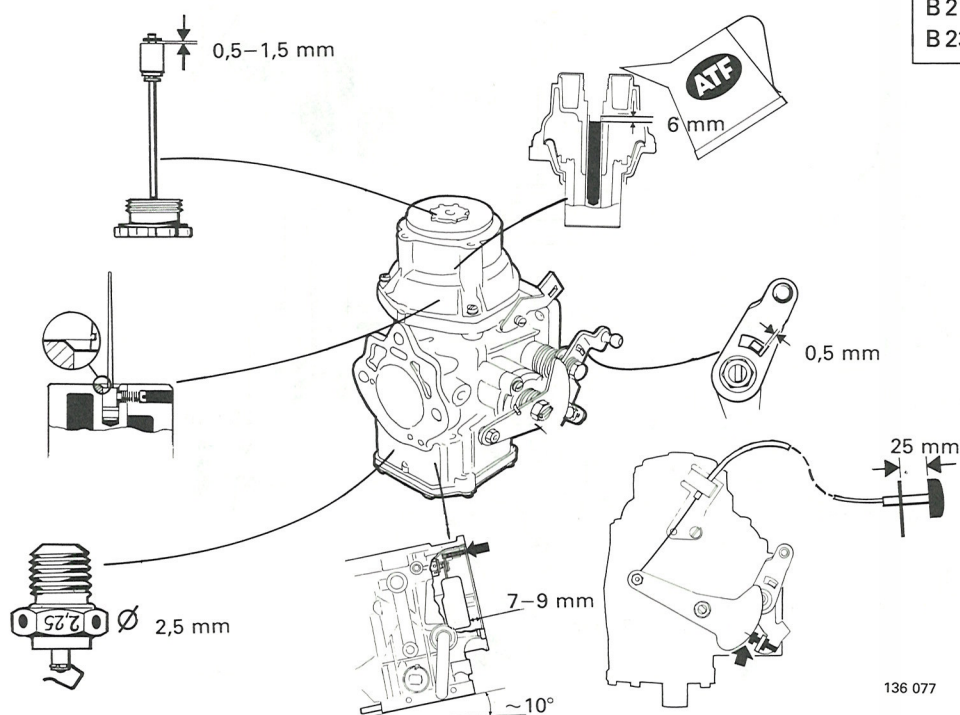
### SU-HIF6 carburettor

<b>B 20 A</b>	1976 Sweden .....	BDG
	Other markets .....	BCJ
<b>B 21 A</b> .....		BDJ
<b>B 27/28 A</b> .....		BDK

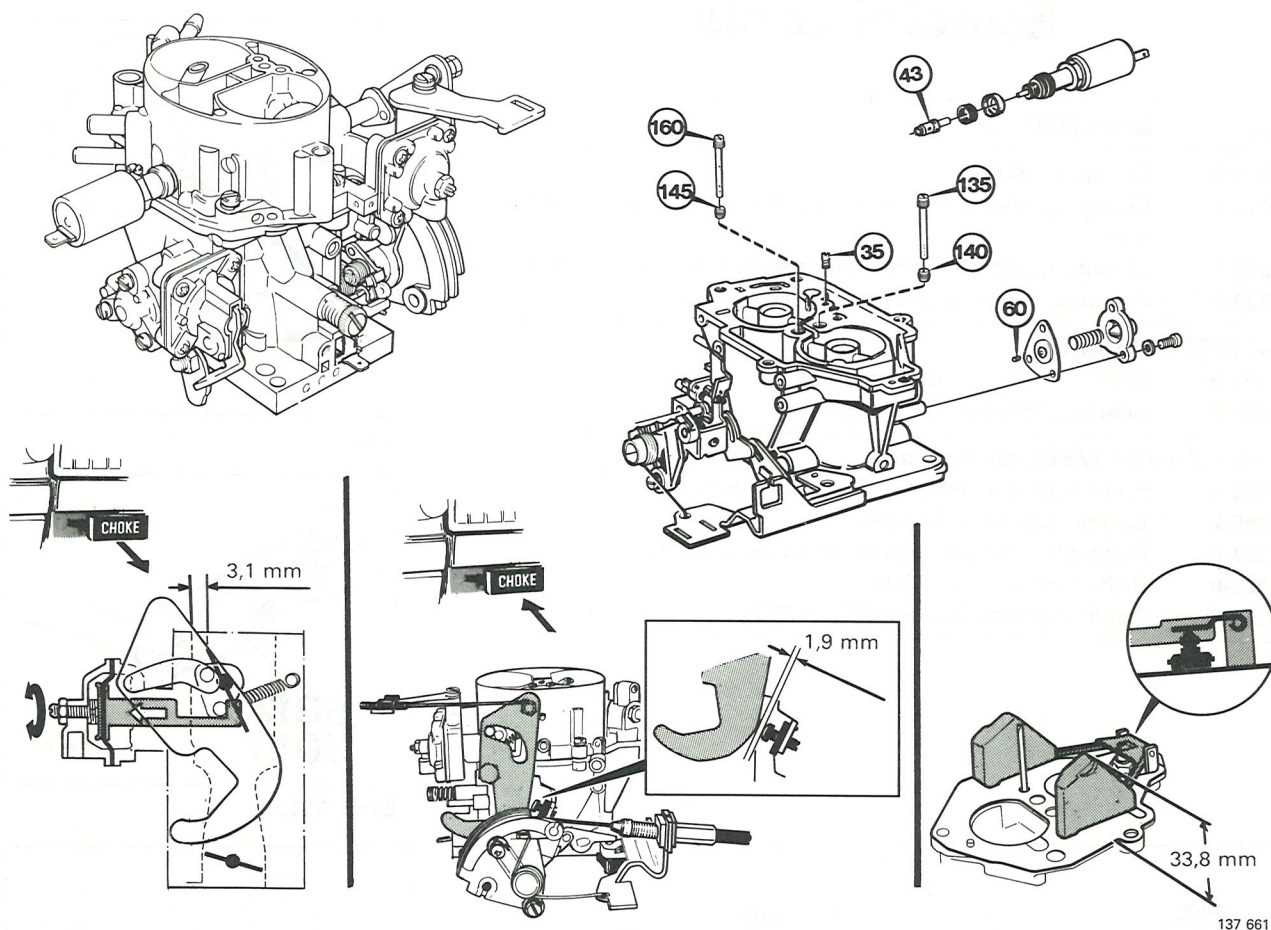


## Pierburg (DVG) 175 CDUS carburettor

B 21 A = PN  
B 23 A = DC





**Solex-Cisac carburettor****Adjusting vacuum unit**

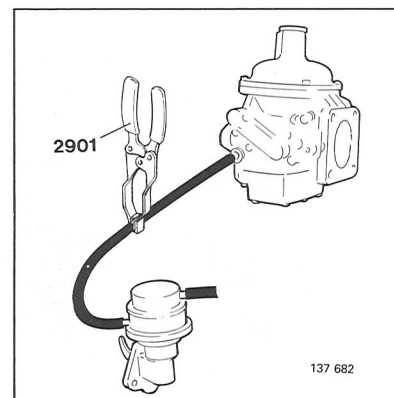
- Choke fully withdrawn
  - Vacuum unit push rod pushed fully in to bottom position
- See also page 75, E5

**Adjusting fast idle**

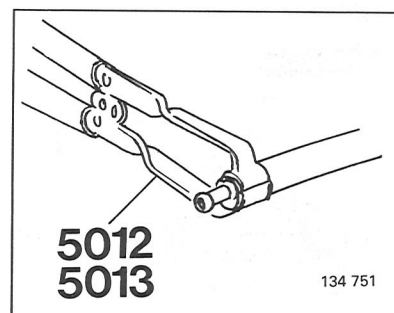
- Choke fully withdrawn

## Special tools

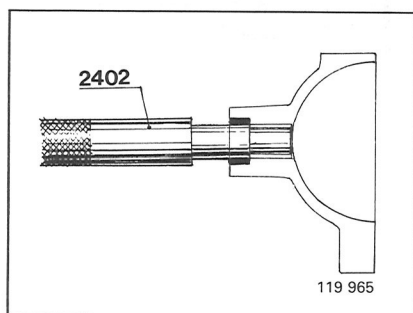
999	Description—use
2901-0	<b>Clamping pliers:</b>
5012-3	<b>Clamping pliers:</b> connecting hose nipples (hose sizes 5 and 8 mm)
5013-1	<b>Clamping pliers:</b> connecting hose nipples (hose size 10 mm)
5230-1	<b>Pressure gauge:</b> measuring fuel pressure
<b>SU-HIF6 carburettor</b>	
2402-9	<b>Drift:</b> throttle spindle bushing
2881-4	<b>Reamer:</b> throttle spindle bushing
<b>Solex (Zenith) 175 CD carburettor</b>	
2895-4	<b>Press tool:</b> adjusting and installing fuel jets
2896-2	<b>Gauge:</b> adjusting fuel jets
2897-0	<b>Press tool:</b> adjusting and removing fuel jets
2962-0	<b>Drift:</b> removing fuel jets
5159-2	<b>Adjusting tool:</b> fuel jets 1978–1984



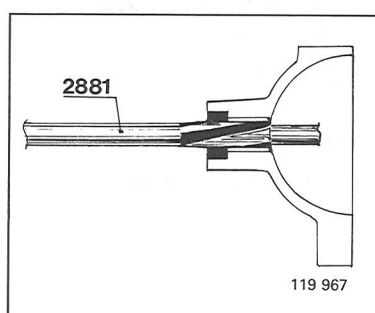
2901



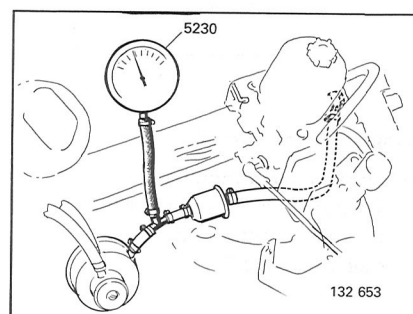
5012, 5013



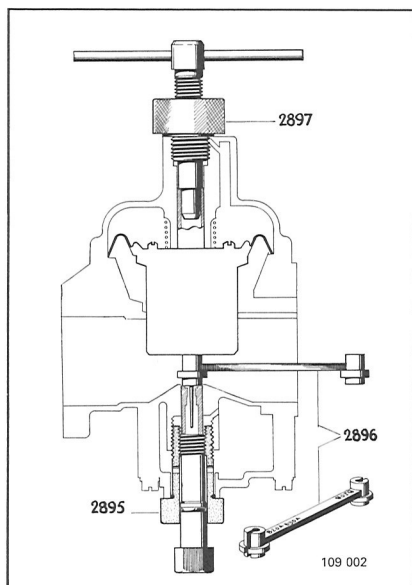
2402



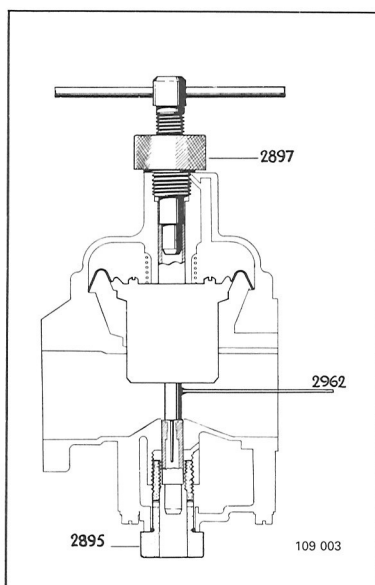
2881



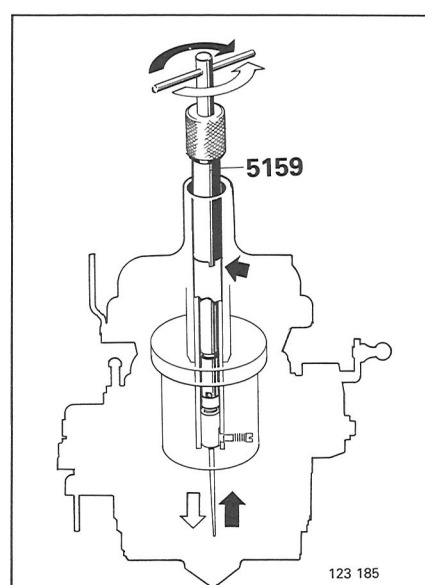
5230



2895, 2896, 2897

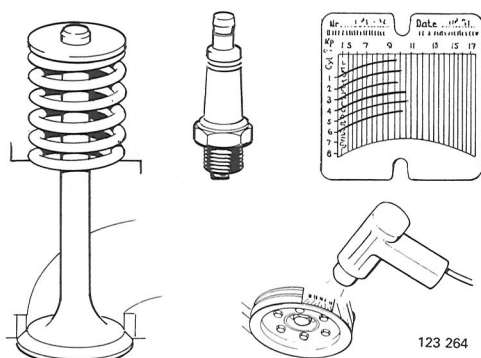


2962



5159

## Important information



### Before starting

Ensure that the vehicle is mechanically and electrically sound before checking the fuel system. Correct octane fuel supplied by well known companies must be used.

The following points should be checked:

#### Mechanical

- compression
- valve clearance
- vacuum hoses and connections
- throttle control and kickdown cable (auto)
- air filter
- intake manifold (air leakage)
- exhaust gas system (leakage)

#### Electrical

- spark plugs
- HT leads
- distributor cap
- ignition coil
- ignition setting, incl. advance
- all electrical connections

#### Exhaust gas purification

- crankcase ventilation
- exhaust gas recirculation (EGR)
- air pump/Pulsair-system
- evaporative system
- Lambda-sond system
- catalytic converter

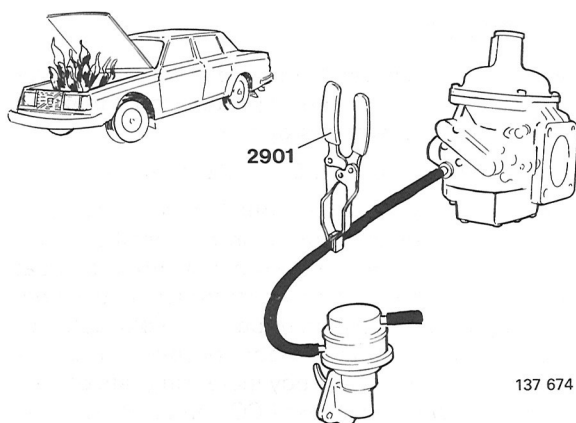
### Cleanliness

Utmost cleanliness should be observed when working on the fuel system.

All fuel connections should be carefully cleaned before removal.

### Gaskets, seals

New seals/gaskets should be fitted if a fuel line connection is slackened or disconnected.



### Petroleum spirit (gasoline), safety precautions

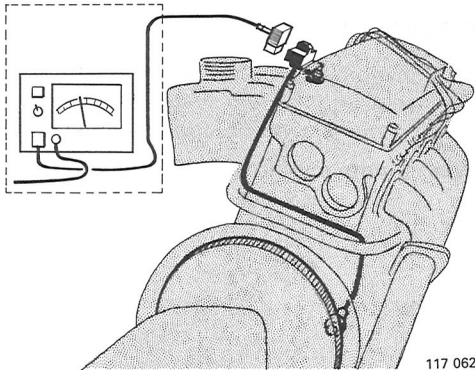
When carrying out repairs to vehicle fuel system extreme care should be taken to prevent fuel spilling onto engine. If the engine is warm the fuel can ignite. Also, petroleum spirit fumes contain benzene and lead, and are a serious danger to health.

Always block fuel inlet to carburettor and run remaining fuel dry before dismantling carburettor. (Use crimping pliers 2901.)

**Do not** use petroleum spirit containing lead and benzene as a solvent or cleaning agent.

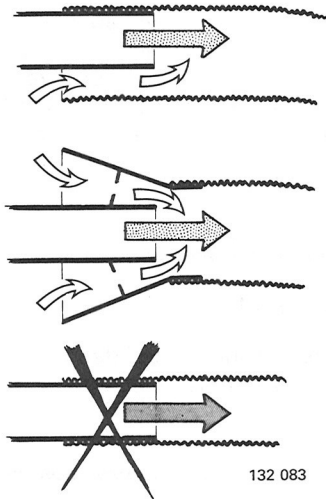


## General instructions for adjusting carburettors



### Engine condition

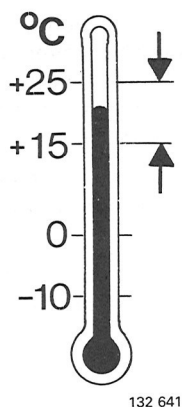
Correct carburettor adjustments can only be obtained if ignition setting, crankcase ventilation, air filter, etc., are according to specification.



### Exhaust gas extractors Connection of CO-meter

If exhaust gas extractors are used, make sure that an open-ended type connector is used. If exhaust gases are evacuated too quickly false results may be obtained.

CO-meter probe should be inserted approx. 480 mm (20 in) in exhaust pipe. Failure to do so may cause incorrect readings as exhaust gases will be mixed with fresh air.

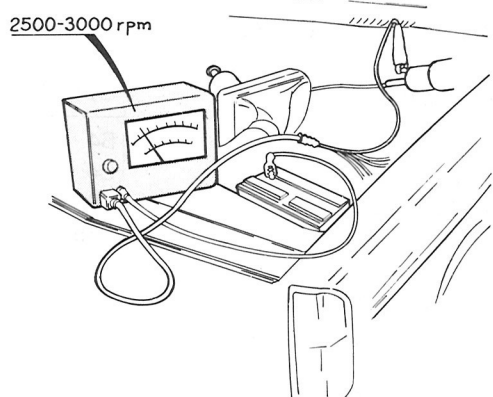


### Temperature

CO level should be checked/adjusted at room temperature (15–25°C = 59–77°F) and **no later than 8 minutes** after radiator thermostat has opened.

Warm-up engine at approx. 25 r/s (1500 r/min).

It is important when carrying out CO measurements that temperature of carburettor is as specified. Carburettor heats up as engine becomes warm. Also float chamber is exposed to radiated heat from exhaust pipe. Fuel flowing through float chamber is initially cold but temperature rises as float chamber becomes hot. This reduces viscosity of fuel thereby increasing rate of flow through fuel jet which increases CO content of exhaust gases.

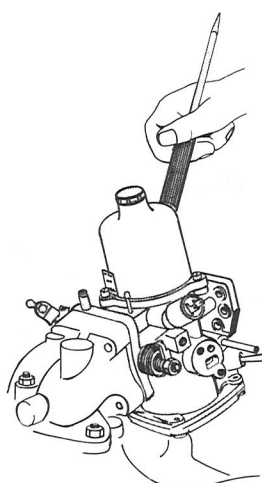


122 402

Float chamber should always feel cold when checking/adjusting CO.

To ensure accurate reading CO should be measured no later than 8 minutes after radiator thermostat has opened. This means before engine and carburettor become too warm.

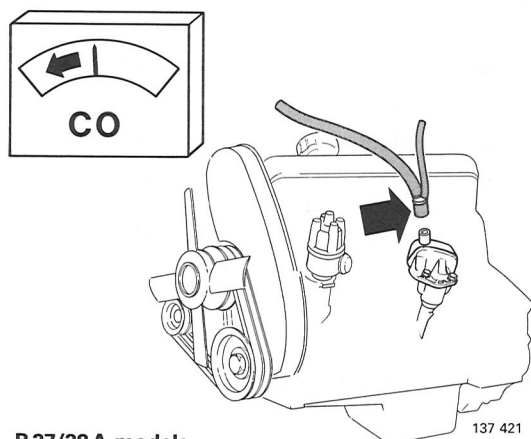
If it is not possible to check/adjust CO within 8 minutes, run engine at 41–50 r/s (2500–3000 r/min), for approx. 1 minute. This gives coolant time to circulate through radiator and cool engine down. Also flow of cold fuel through float chamber will reduce temperature of carburettor. (If in doubt about engine temperature, rev-up engine as described above before taking readings.)



122 403

### Before reading meter

- Increase engine speed briefly to ca 25 r/s (1500 r/min) so that cold fuel flows into carburettor.
- Tap suction chamber lightly to ensure plunger settles properly.
- Remember to take reading within 8 minutes.



137 421

### B 27/28 A models

Disconnect crankcase ventilation system by removing oil filler cap

### CO content too high

If vehicle is driven often under stop-start conditions engine oil can be contaminated with petrol (gasoline). As a result crankcase gases can affect CO content and cause false meter reading.

- Disconnect crankcase breather hose before checking CO.
- CO drops slightly when crankcase breather hose is disconnected.
- If CO drops considerably, this indicates that engine oil is contaminated with fuel and should be changed as soon as possible.

## A. Fault tracing—SU-HIF6 carburettor

- It is presumed in the following fault tracing procedures that the engine is mechanically sound and free from electrical faults (see instructions on page 18).
- If no faults are found, recondition carburettor according to instructions on page 32.

### Poor cold starting and/or Stalling during warm-up

Probable fault	Operation
Damper oil too thick	B4
Fast idle incorrectly adjusted	B3, 11
Piston-bridge gap too small	B58
Suction piston seized	B55
Air-fuel leakage from choke	B44–45
B 27/28 A: pre-heating gasket	G1–3

### Poor warm starting

Probable fault	Operation
Suction piston seized	B55
Float chamber breather blocked	B33
B 21 A 1979–1980: insulation gasket	J1–4
B 21 A 1979–: warm start valve	K1–5

### High fuel consumption

Probable fault	Operation
Damper oil too thick	B4
Damper piston breather blocked	B54
Choke incorrectly adjusted	B3, 11
Float chamber breather blocked	B33
B 21 A 1979–: warm start valve, hoses	K1–5
B 27/28 A: Lean-mixture system	B46
Suction piston seized	B55
Metering needle incorrectly set	B57
Metering needle/jet worn	B47, 56
Float level too high	B48–51
B 21 A 1979–: inlet funnel	H1–2

### Lack of power/low top speed

Probable fault	Operation
Throttle valve does not open fully	B42
Throttle incorrectly adjusted	B13–15
Suction piston seized/loose	B55
Float level too low	B48–51

### Rough idle, stalling

Probable fault	Operation
Damper oil level too low	B4
Damper oil too thin	B4
Piston-bridge gap too small	B58
Suction piston seized	B55
Solenoid valve does not open	F1–7
Float chamber breather blocked	B33
B 21 A 1979–: warm start valve defective	K1–5
Throttle spindle loose	B34
Air/fuel leakage from choke	B44–45
CO content incorrect	B1–15
Metering needle/jet worn	B47, 56
Float level incorrect	B48–51
Throttle valve incorrectly set	B16–26

### Rough acceleration

Probable fault	Operation
Damper oil level too low	B4
Damper oil too thin	B4
Damper piston side play too large	B54
Suction piston seized	B55
Float level too low	B48–51

### Dieselling (running-on)

Probable fault	Operation
Idle speed too high	B10
Solenoid valve defective	F1–7
Suction piston seized	B55
B 21 A 1978–, B 27/28 A 1977–: throttle valve incorrectly set	B16–26

### Difficult to set CO/idle

Probable fault	Operation
Suction piston seized/loose	B55
Air/fuel leakage from choke	B44–45
Metering needle/jet worn	B47, 56



## A. Fault tracing—Solex (Zenith) 175 CD carburettor

A2

- It is presumed in the following fault tracing procedures that the engine is mechanically sound and free from electrical faults (see instructions on page 18).
- If no faults are found, recondition carburettor according to instructions on page 51.

### Poor cold starting and/or Stalling during warm-up

Probable fault	Operation
Damper oil too thick	C4
Fast idle incorrectly set	C3, 23
Temperature compensator defective	C65–67
Air/fuel leakage from choke	C62–64

### Poor warm-starting

Probable fault	Operation
Temperature compensator defective	C65–67
Float chamber breather blocked	—
1979–1980: insulation gasket	J1–4
1979–: warm start valve	K1–5

### Rough idle, stalling

Probable fault	Operation
Damper oil level too low	C4
Damper oil too thin	C4
Temperature compensator defective	C65–67
Solenoid valve does not open	F2–7
Float chamber breather blocked	—
1979–: warm start valve defective	K1–5
Throttle spindle loose	C41
Air/fuel leakage from choke	C62–64
CO incorrect	C1–29
Metering needle/jet worn	C46, 50–51
Float level incorrect	C57–60
Throttle valve incorrectly set	C30–35

### High damper oil consumption 1978–

Probable fault	Operation
Leakage from O-ring on metering needle adjustment screw	C51–55

### Rough acceleration

Probable fault	Operation
Damper oil level too low	C4
Damper oil too thin	C4
Damper piston side play too large	C68
Float level too low	C57–60

### Lack of power/low top speed

Probable fault	Operation
Throttle incorrectly set	C27–29
Suction piston diaphragm defective	C49
Float level too low	C57–60

### High fuel consumption

Probable fault	Operation
Damper oil too thick	C4
Choke incorrectly set	C3, 23
Float chamber breather blocked	—
1979–: warm start valve, hoses	K1–5
Suction piston diaphragm defective	C49
– 1977: metering needle incorrectly set	C50
1978–: fuel jet incorrectly set	C46
Metering needle/jet worn	C46, 50–51
Float level too high	C57–60

### Dieselling (running-on)

Probable fault	Operation
Idle speed too high	C22
Solenoid valve defective	F2–7
Throttle incorrectly set	C30–35

### Difficult to set CO/idle

Probable fault	Operation
Air/fuel leakage from choke	C62–64
Metering needle/jet worn	C46, 50–51

## Fault tracing

**A. Fault tracing—Pierburg (DVG) 175 CDUS carburettor A3**

- It is presumed in the following fault tracing procedures that the engine is mechanically sound and free from electrical faults (see instructions on page 18).
- If no faults are found, recondition carburettor according to instructions on page 67.

**Poor cold starting and/or Stalling during warm-up**

Probable fault	Operation
Damper oil too thick	D4
Fast idle incorrectly set	D3, 11
Air/fuel leakage from choke or vacuum valve	D39–40

**Poor warm starting**

Probable fault	Operation
Float chamber breather blocked	—
1979–1980: insulation gasket	J1–4
1979–: warm start valve	K1–5

**Rough idle, stalling**

Probable fault	Operation
Damper oil level too low	D4
Damper oil too thin	D4
Solenoid valve does not open	F2–7
Float chamber breather blocked	—
1979–: warm start valve defective	K1–5
Throttle spindle loose	D27
Air/fuel leakage from choke or vacuum valve	D39–40
CO incorrect	D1–15
Metering needle/jet worn	D33, 37
Float level incorrect	D30–32
Throttle incorrectly set	D16–21

**Rough acceleration**

Probable fault	Operation
Damper oil level too low	D4
Damper oil too thin	D4
Damper piston play too large	D41
Float level too low	D30–32

**Lack of power/low top speed**

Probable fault	Operation
Throttle incorrectly set	D13–15
Suction piston diaphragm defective	D36
Float level too low	D30–32

**High fuel consumption**

Probable fault	Operation
Damper oil too thick	D4
Choke incorrectly set	D3, 11
Float chamber breather blocked	—
1979–: warm start valve, hoses	K1–5
Suction piston diaphragm defective	D36
Metering needle incorrectly set	D37
Metering needle/jet worn	D33, 37
Float level too high	D30–32

**Dieseling (running-on)**

Probable fault	Operation
Idle speed too high	D10
Solenoid valve defective	F2–7
Throttle incorrectly set	D16–21

**Difficult to set idle/CO**

Probable fault	Operation
Air/fuel leakage from choke or vacuum valve	D39–40
Metering needle/jet worn	D33, 37

## A. Fault tracing—Solex-Cisac carburettor

- It is presumed in the following fault tracing procedures that the engine is mechanically sound and free from electrical faults (see instructions on page 18).
- If no faults are found, recondition carburettor according to instructions on page 78.

### Poor cold starting and/or Stalling during warm-up

Probable fault	Operation
Choke incorrectly set	E4–7
Air leakage from choke vacuum unit	E17
Thermistor defective	E13–14

### Poor warm-starting

Probable fault	Operation
Choke incorrectly set	E4–7
Warm start valve/hoses defective	K1–5

### Rough idling, stalling

Probable fault	Operation
Solenoid valve defective	E11–12
Float chamber breather blocked	–
Air leakage from part-load enrichment device	E17
CO defective	E1–10
Float level incorrect	E16
Blocked jets	E17

### Rough acceleration

Probable fault	Operation
Accelerator pump/jets	E17
Float level too low	E16

### Lack of power/low top speed

Probable fault	Operation
Valve in barrel 2 does not open	E2, 4
Throttle cable incorrectly set	E3
Blocked fuel filter at carburettor inlet or fuel line filter	E17
Blocked main jets	E17
Defective jet sizes	E17
Float level too low	E16

### High fuel consumption

Probable fault	Operation
Choke defective	E4–7
Warm start valve/hoses defective	K1–5
Part load enrichment device defective or air leakage	E17
Incorrect jet sizes	E17
Float level too high	E16

### Dieselling (running-on)

Probable fault	Operation
Idle speed too high	E9
Solenoid valve defective	E11–12

### Difficult to set idle/CO

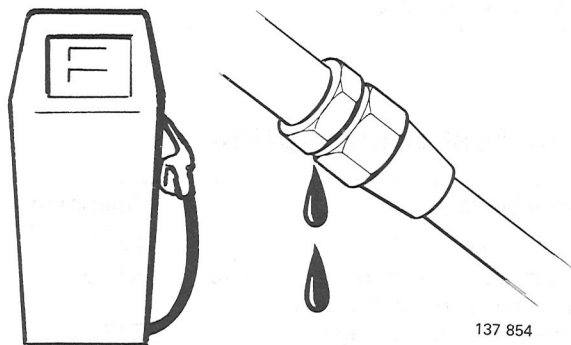
Probable fault	Operation
Air leakage from part load enrichment device	E17
Blocked jets	E17



## A. Fault tracing—general instructions

Operations A5-20

Before adjusting carburettors unnecessarily, ensure that the components and systems shown below are operating satisfactorily.



A5

### Fuel

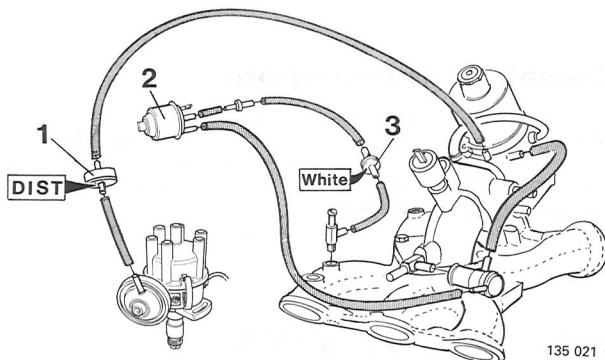
Ensure that fuel of correct octane and quality is used.

A6

### Fuel lines

Check all fuel lines for leakage, chafing, kinking etc. Check that fuel tank ventilation line is not blocked.

**B27/28A:** Check that overflow pipe from fuel pump is not blocked.



A7

### Vacuum hoses

Check that all hoses are correctly connected, intact and not kinked.

**Australia, Canada:** Check drainage hose from charcoal canister for blockages.

A8

### Air filter

Check that the filter cartridge is not dirty or blocked as this can cause:

- high fuel consumption
- poor engine performance.

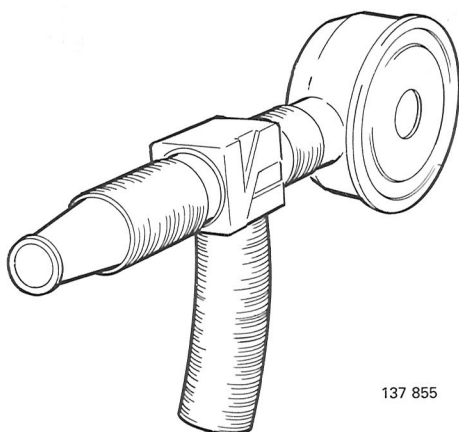
A9

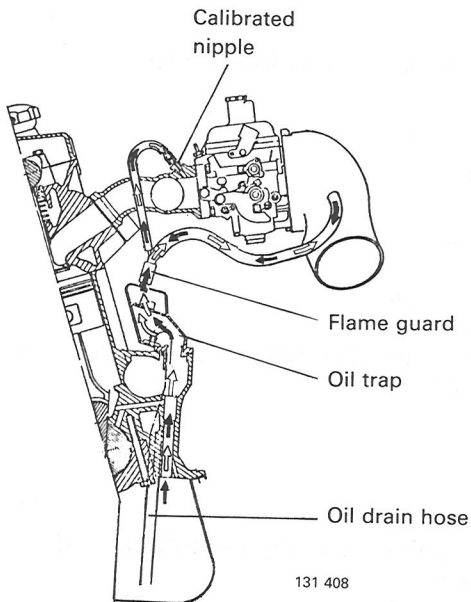
### Air pre-heating

Check temperature at which throttle housing shutter opens/closes, see L4, L8 and L11

Defective throttle housing can cause:

- rough idle or cold-starting problems, stalling
- poor running, especially at low temperatures
- poor engine performance.





131 408

### Crankcase ventilation

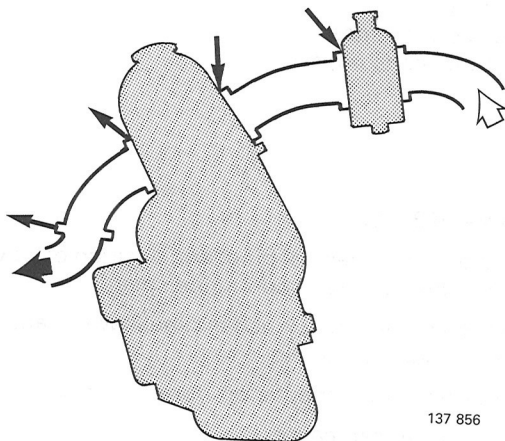
Check that:

- all hoses are intact, correctly connected and not kinked or blocked
- the calibrated nipple is not blocked
- flame guard is not blocked.

A blocked flame guard can cause engine to knock.

**IMPORTANT** Crankcase gases affect CO level, see page 13.

Crankcase ventilation system on a 4-cylinder 1981–1984 model shown adjacent.



137 856

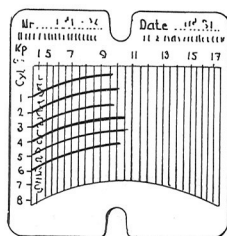
### Inlet and exhaust systems

Check both inlet and exhaust systems for leakage.

Inlet system leakage can cause:

- poor starting
- rough operation
- poor performance.

Exhaust system leakage can cause false CO reading.



137 857

### Compression

Low compression can cause:

- poor starting, especially when cold
- poor engine performance.

Compression which varies from cylinder to cylinder can cause rough running.

### Valve clearances

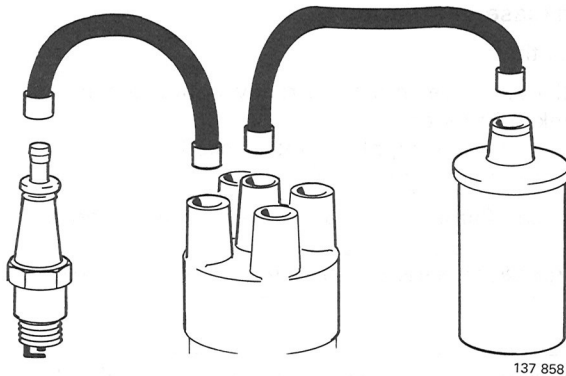
Too low a clearance can cause:

- poor starting (especially when warm)
- rough idling

Too large a clearance can cause:

- high idle speed. (This causes large inlet manifold pressure which can cause throttle valve relief valve to remain open.)

A14



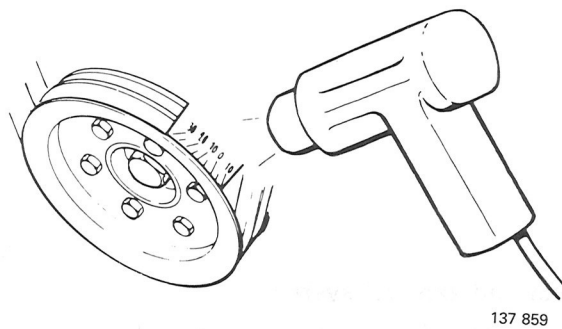
### Spark plugs, HT leads, distributor cap and ignition coil

Check for wear, cracks, tracking, dirt, etc.

Faults can cause:

- starting problems
- rough running
- knocking
- poor performance
- high fuel consumption
- high idle speed (throttle valve relief valve does not close, refer E13)

A15

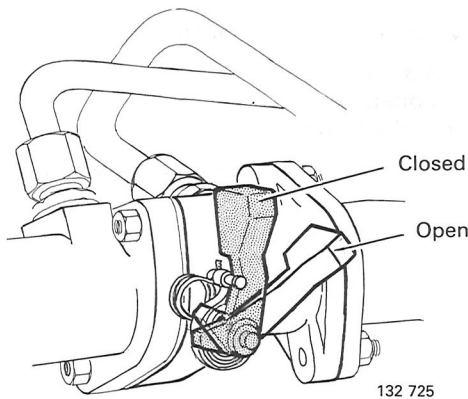


### Dwell angle, ignition setting, centrifugal and vacuum advance

Faults can cause:

- poor starting
- rough running
- knocking
- poor performance
- high fuel consumption.

A16



### Hot spot B27/28 A

Check that valve does not bind, and position of valve at different temperatures and engine speeds.

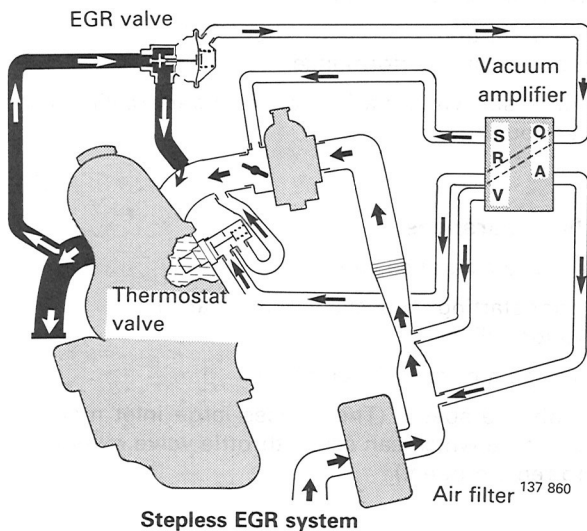
Valve should only open when engine is warm and running at speeds above idle.

Extent of opening depends on power output.

Defective valve can cause:

- rough running of warm engine, stalling
- poor low temperature running.

A17



### Exhaust gas recirculation (EGR)

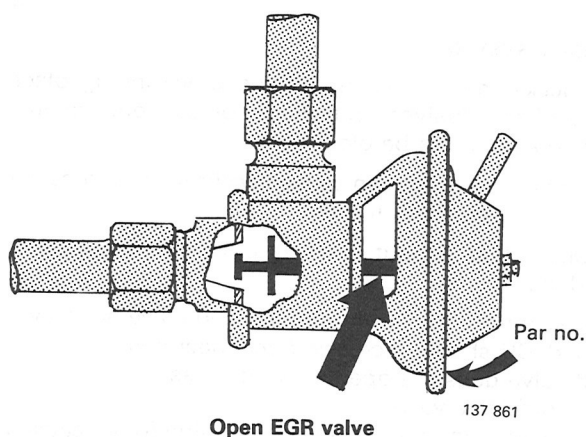
Check that EGR valve does not bind. Also that it only opens at part throttle (warm engine = coolant +70°C).

Opening/closing of valve can be checked by observing movement of link rod.

It is sometimes difficult to decide if EGR valve is fully closed. If in doubt, disconnect tube between valve and inlet manifold and check if valve is leaking.

If valve is open at idle, idle will be rough and engine may stall.



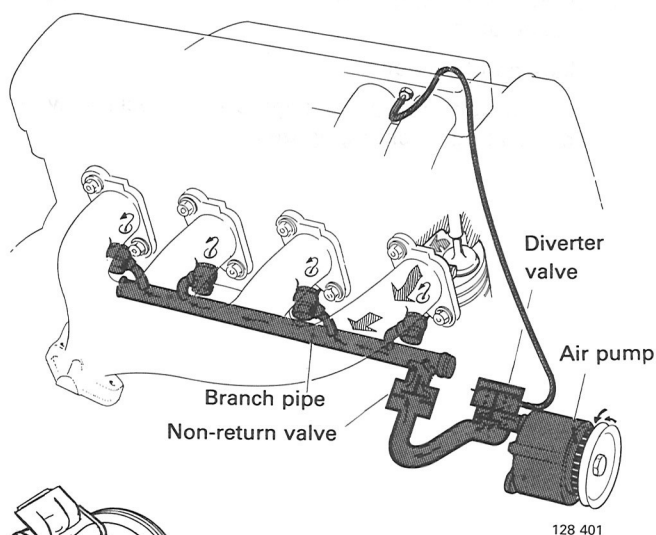


Open EGR valve

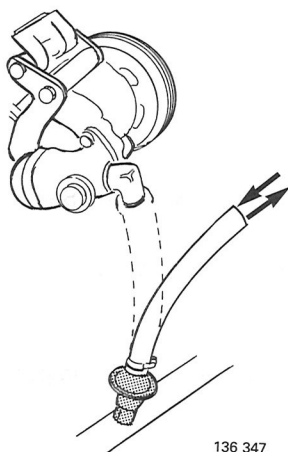
**IMPORTANT**

Opening pressure and flow rate of EGR valve varies with engine type. Refer to specifications.

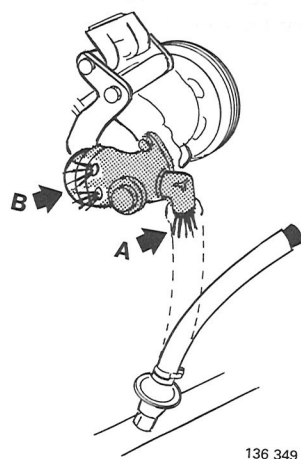
Part number is stamped on valve body.

**A18****Air pump**

Air pump is only fitted to early type vehicles in Australia and Canada. A defective pump can cause backfiring during engine braking and gear changing.



Check function of non-return valve by blowing/sucking through hose.

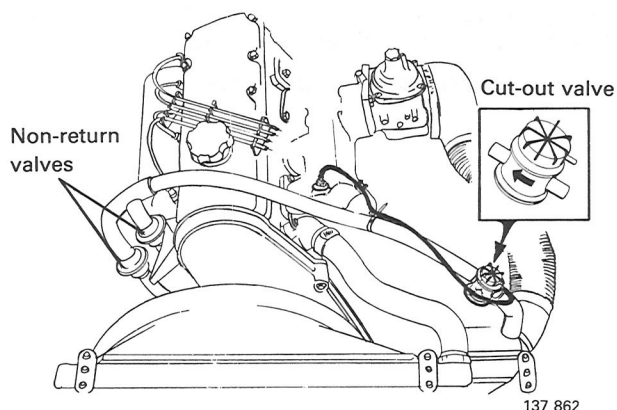


To check diverter valve function:

- Plug end of hose at diverter valve.
- Run engine at idle and check that air is blown out of port A.
- Increase engine speed to 50 r/s (3500 r/min) and release throttle quickly. Air should cease to flow from A and start at opening B.

**IMPORTANT**

- Disconnect and plug diverter valve hose when checking/adjusting CO
- CO should drop when reconnecting diverter valve.



Cut-out valve is only fitted on early type Pulsair systems but can be fitted if required.

**IMPORTANT**

- Disconnect and plug Pulsair system when checking/adjusting CO.
- CO should drop when reconnecting system.
- If new air filter cover is fitted, a hole must be drilled in the hose connection, see L7, page 95.

**Pulsair-system**

- Check non-return valves. With engine running, place hand over valves and check for suction. Exhaust gases must not be blown out.

A defective valve can cause backfiring and force exhaust gases into air filter.

- Check that cut-out valve is open when engine is idling.

Disconnect hose from air filter and place hand over end. CO should increase. Reconnect hose.

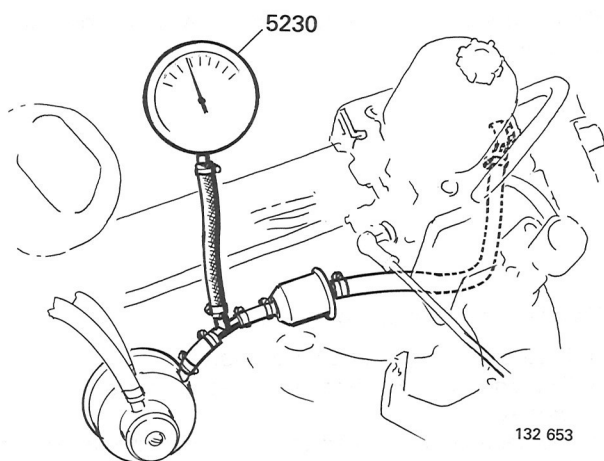
If valve does not open, this indicates:

- defective valve
- inlet manifold depression too high (often caused by too large valve clearance or retarded ignition)

- Check that cut-out valve closes when engine is decelerated.

Place hand on valve.

If valve does not close engine may backfire when decelerating or changing gear.



**Fuel pump**

Check fuel pump for leakage. Check pressure. See N1, page 99.

Insufficient pressure/low fuel flow can cause:

- rough running
- poor output.

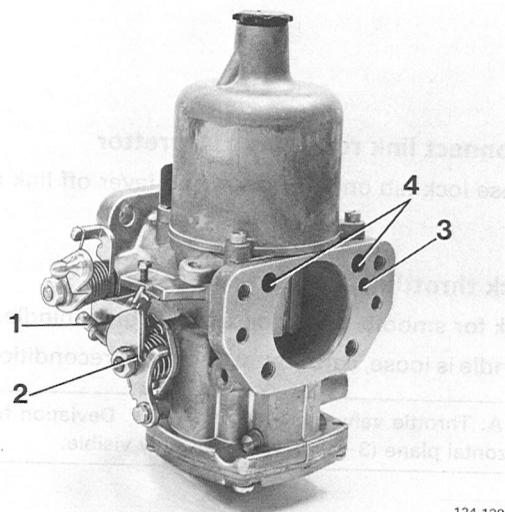
Note that low fuel rate can be caused by blocked pump or tank filter.

## B. SU-HIF6 carburettor

SU-HIF6 carburettor fitted on B20 A engine is shown below.

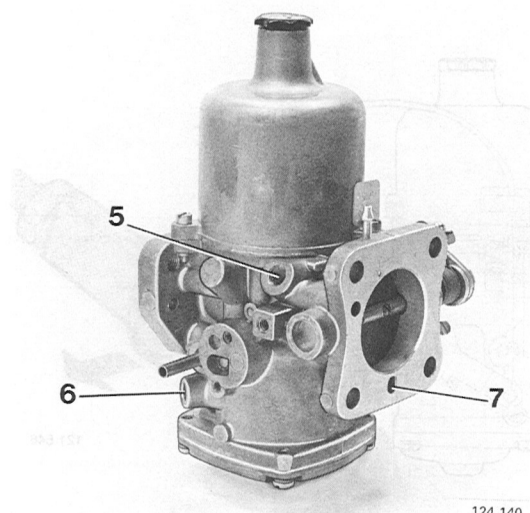
Throttle linkage on B21 A and B27/28 A is located on opposite side of carburettor.

Also B27/28 A carburettor is equipped with a system to produce a lean mixture during part-load conditions.



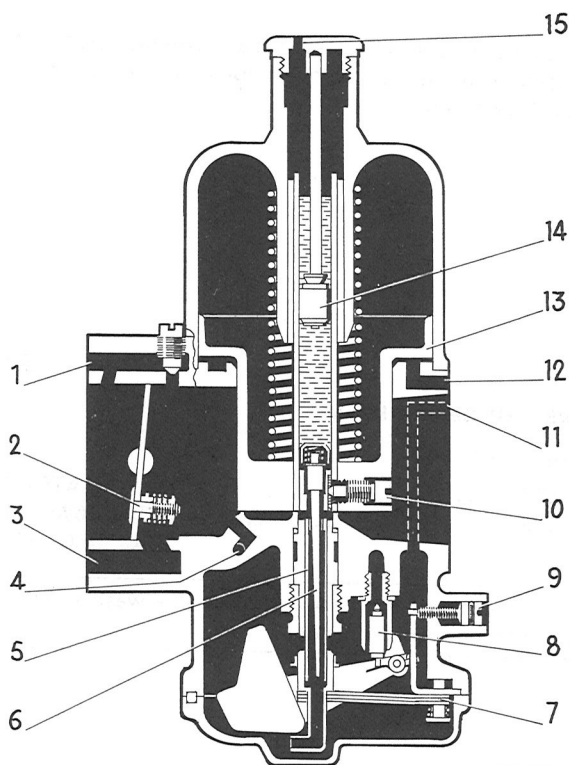
124 138

- 1 Fast idle adjustment screw
- 2 Choke
- 3 Float chamber vent hole
- 4 Channels leading to chamber beneath suction piston



124 140

- 5 Solenoid valve terminal
- 6 CO adjustment screw
- 7 Idle channel B21 A 1978–, B27/28 A 1977–



124 161

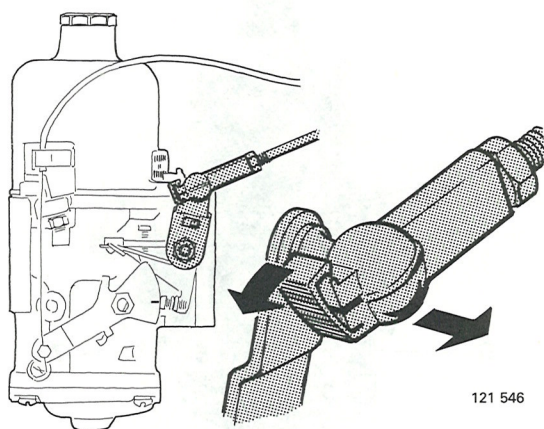
- 1 Solenoid valve channel
- 2 Overflow valve (some models)
- 3 Idle channels B21 A 1978–, B27/28 A 1977–
- 4 Choke channel
- 5 Fuel jet
- 6 Metering needle
- 7 Bimetal spring
- 8 Needle valve
- 9 CO adjustment screw
- 10 Retaining screw for metering needle
- 11 Float chamber vent hole
- 12 Channel leading to chamber beneath suction piston
- 13 Suction piston
- 14 Damper piston
- 15 Vent hole

## B. Carburettor, tuning and adjustment

### Operations B 1–15

A B 27/28 A carburettor is shown in this section. Procedures do however apply to B 20 A and B 21 A.

See also instructions on page 12.



B1

#### Disconnect link rod from carburettor

Release lock tab on ball socket and lever off link rod.

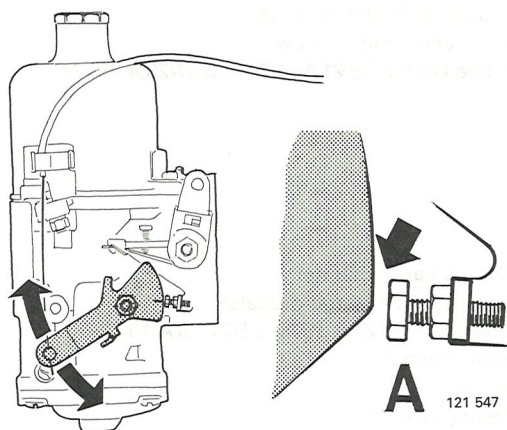
B2

#### Check throttle valve and spindle

Check for smooth operation of valve and spindle.

If spindle is loose, carburettor should be reconditioned.

B 27 A: Throttle valve only opens 85–87°. Deviation from horizontal plane (3–5°) is small but fully visible.

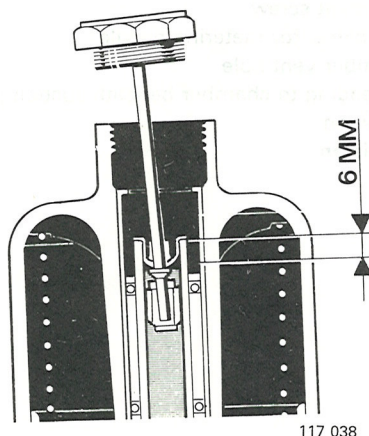


B3

#### Check choke linkage

Check for full movement of lever when choke is withdrawn.

Depress choke. Check that lever is at lower stop position and fast idle adjustment screw A does not contact lever. Adjust if necessary.



B4

#### Check damper oil level

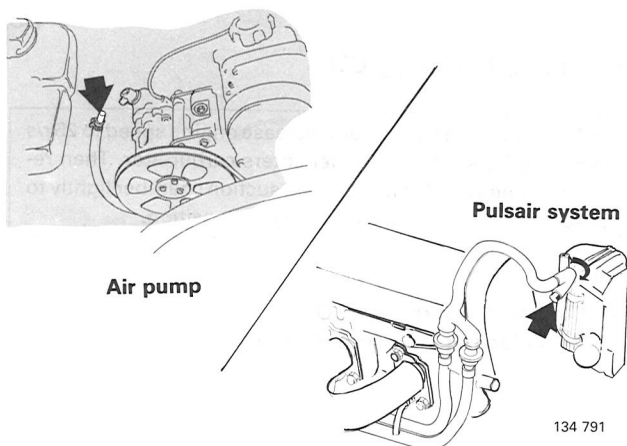
Top up with:

B 20/21 A	.....	ATF oil
B 27/28 A	.....	Engine oil SAE 10W–40
		(SAE 10W–50)

B 21 A Canada and B 27/28 A: remove baffle washer with pliers to lift out damper piston.



B5

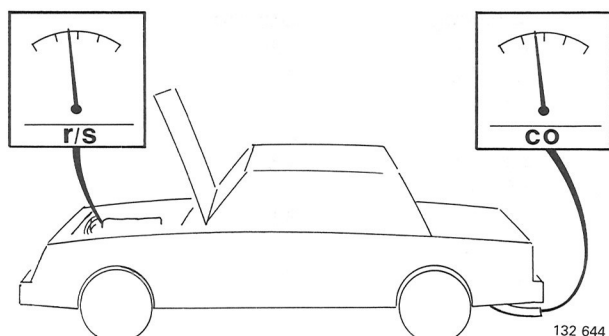


### Disconnect air pump/Pulsair system (as applicable)

(Carburettor setting will be incorrect if air pump/Pulsair system is not disconnected.)

Disconnect hose. Plug end of hose or crimp with pliers 2901.

B6

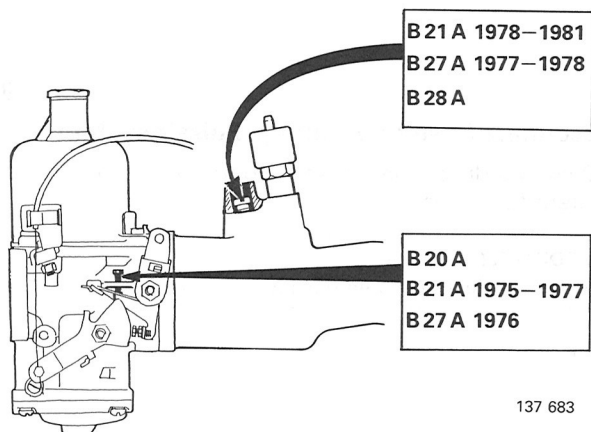


### Connect tachometer and CO meter

#### Warm-up engine

Warm-up engine 25 r/s (1500 r/min) until radiator thermostat opens. (Upper radiator hose becomes warm when thermostat opens).

B7

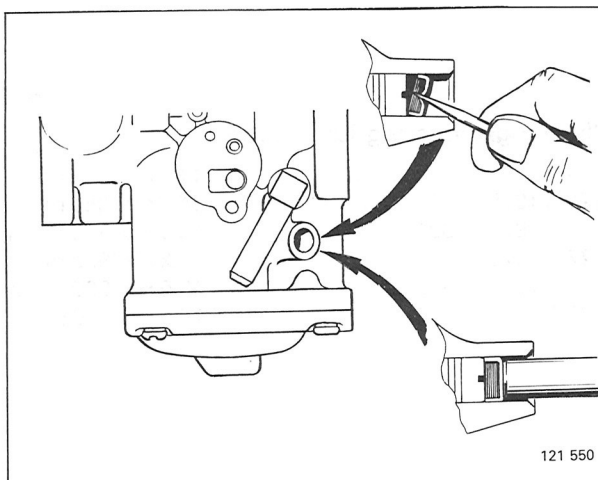


### Set idle speed

<b>B20 A</b> .....	<b>11.7 r/s</b> (700 r/min)
<b>B21 A</b> 1975-1977 .....	<b>14.2 r/s</b> (850 r/min)
1978-1981 .....	<b>15.0 r/s</b> (900 r/min)
<b>B27 A</b> 1976 .....	<b>14.2 r/s</b> (850 r/min)
1977-1979 .....	<b>15.0 r/s</b> (900 r/min)
<b>B28 A</b> .....	<b>15.0 r/s</b> (900 r/min)

B21 A 1978-, B27 A 1977-, B28 A.

If idle speed cannot be set with flow regulating screw, throttle valve must be set according to pages 28 and 39.



### Sealing CO adjustment screw (legal requirement)

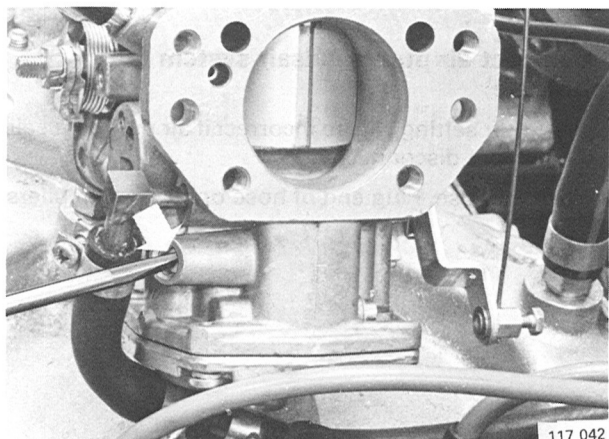
#### EEC markets + Switzerland 1977-1984

CO adjustment screw is sealed with an aluminium plug.

To remove: pierce plug with an awl and pry out.

Tap in new plug after adjusting CO.

B8



## Checking/adjusting CO

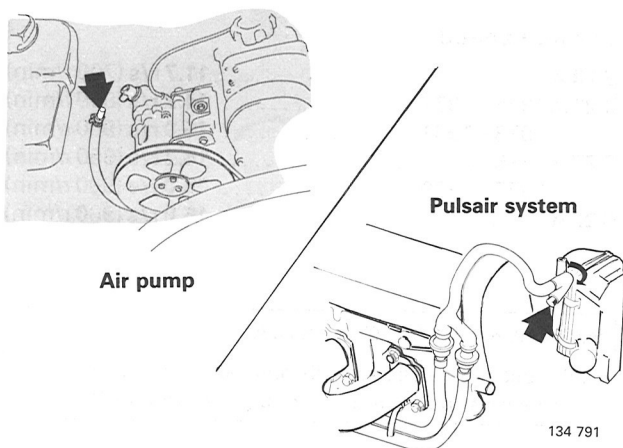
Before recording CO content increase engine speed to 25 r/s (1500 r/min) so that cold fuel enters carburettor. Then reduce engine speed to idle and tap suction chamber lightly to ensure that piston returns to original position.

Turning screw:

- **Clockwise increases CO**
- **Anti-clockwise decreases CO**

## CO content %

	Checking	Setting
<b>B20 A</b> 1975 .....	1.5–4.0	2.5
1976 .....	0.5–4.0	1.5
<b>B21 A</b> 1975–1977 .....	1.5–4.0	2.5
1978 Sweden .....	1.5–3.0	2.0
Australia, Canada .....	3.5–5.5	4.5
Other markets .....	2.0–3.5	2.5
1979–1980 Australia, Canada .....	2.5–4.0	3.5
Other markets .....	1.5–3.0	2.0
1981 Canada .....	2.5–4.0	3.5



B9

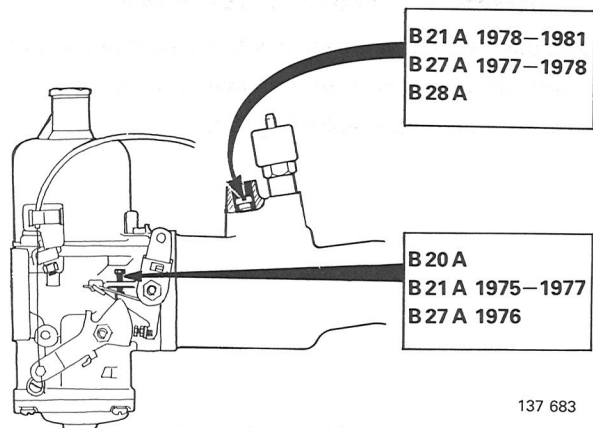
## Reconnect hose to air pump/Pulsair system

CO should drop when hose is connected to show that system functions.

**IMPORTANT**

**Do not readjust CO when hose is connected.**

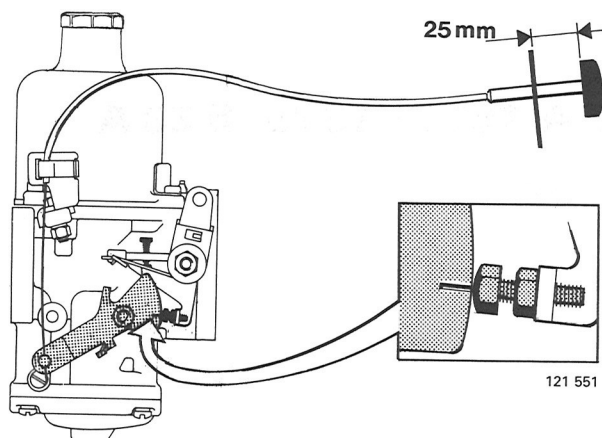
B10



## Checking/adjusting idle speed

<b>B20 A</b> .....	<b>11.7 r/s</b> (700 r/min)
<b>B21 A</b> 1975–1977 .....	<b>14.2 r/s</b> (850 r/min)
1978–1981 .....	<b>15.0 r/s</b> (900 r/min)
<b>B27 A</b> 1976 .....	<b>14.2 r/s</b> (850 r/min)
1977–1979 .....	<b>15.0 r/s</b> (900 r/min)
<b>B28 A</b> .....	<b>15.0 r/s</b> (900 r/min)

B11

**Adjust fast idle**

Pull out choke approx. 25 mm (1 in) so that mark on choke lever is opposite fast idle adjustment screw.

Adjust fast idle to:

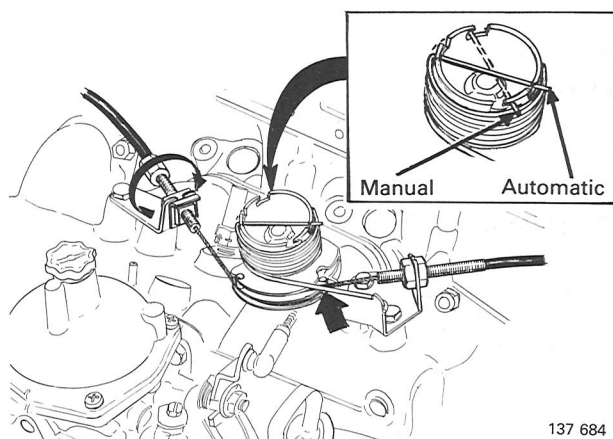
<b>B20 A</b> .....	<b>18.3–25.0 r/s</b> (1100–1500 r/min)
<b>B21 A</b> .....	<b>20.8–22.5 r/s</b> (1250–1350 r/min)
<b>B27 A</b> 1976–1977 ...	<b>20.0–26.7 r/s</b> (1200–1600 r/min)
1978–1979 ...	<b>23.3–26.7 r/s</b> (1400–1600 r/min)
<b>B28 A</b> .....	<b>20.8–22.5 r/s</b> (1250–1350 r/min)

Push choke in.

B12

**Turn off engine. Remove meters**

B13

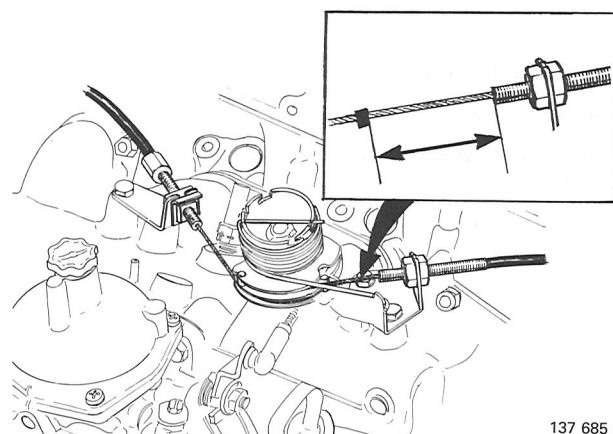
**Adjust throttle cable**

When released, throttle pulley should contact stop and cable should be taut.

When fully open, pulley should contact other stop.

B21 A length of pulley spring may differ for manual and automatic gearboxes.

B14

**Adjust kick-down cable (auto trans)**

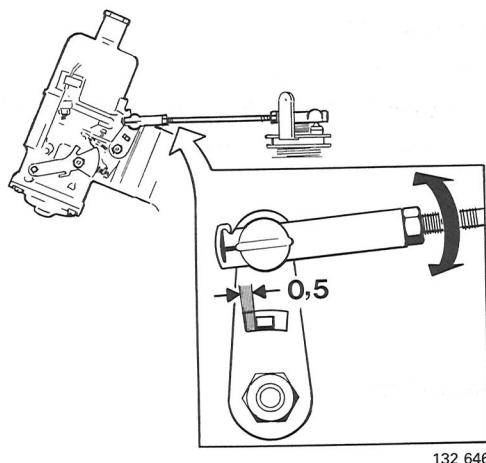
Depress accelerator to floor.

Do not turn throttle pulley by hand or setting may be incorrect.

At full throttle, cable sleeve—clip dimension=:

<b>BW 35</b> .....	<b>43–47 mm (1.694–1.852 in)</b>
<b>BW/AW 55</b> .....	<b>50.4–52.6 mm (1.986–2.072 in)</b>

B15

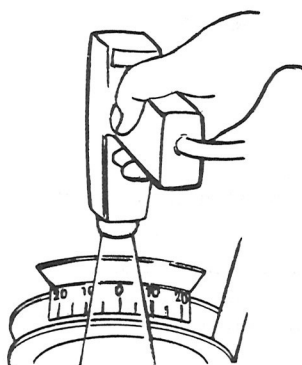
**Reconnect/adjust link rod**

Press on link rod and engage clip.

Adjust link rod to obtain a clearance of **0.5 mm (0.020 in)** between lever and spindle flange.

## Setting throttle valve—B 27 A 1977–1979, B 28 A

Operations B 16–20



137 686

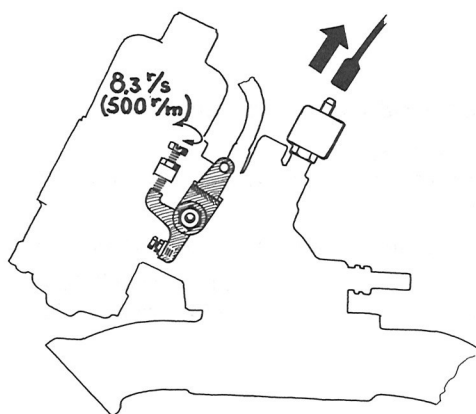
**Turn on ignition**  
**Warm-up engine**

B16

**Check/adjust CO**

B17

If CO cannot be set to specification, throttle valve must be reset and CO adjusted until correct.



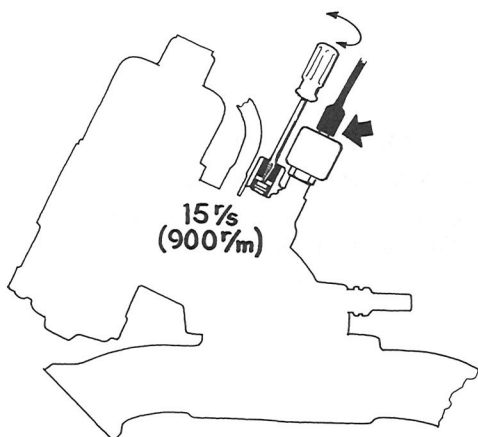
**Set throttle valve**

B18

Disconnect wire from solenoid.

Set engine speed to **8.3 r/s** (500 r/min) by adjusting throttle screw.

Lock screw with lock nut.



113 463

**Adjust idle speed**

B19

Reconnect wire to solenoid.

Turn off engine. Start engine again to open solenoid.

Adjust engine speed with idle adjustment screw to **15.0 r/s** (900 r/min).

**Set carburettor**

B20

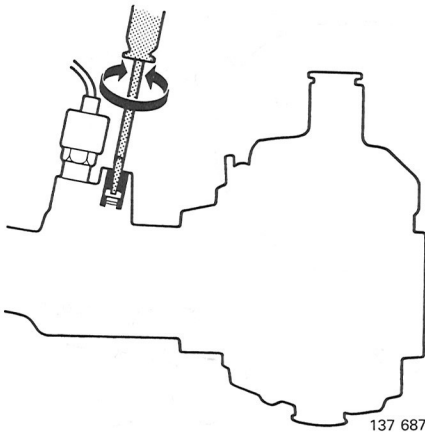
See page 24.



## Setting throttle valve—B 21 A 1978–1981

Operations B 21–26

- Method below should only be used in response to complaints about dieselling (run-ning-on) or if difficulties are encountered in setting idle speed/CO in usual manner.
- If carburettor is removed from vehicle, see page 35 (B 43).



B 21

**Turn on ignition**  
**Warm-up engine**

B 22

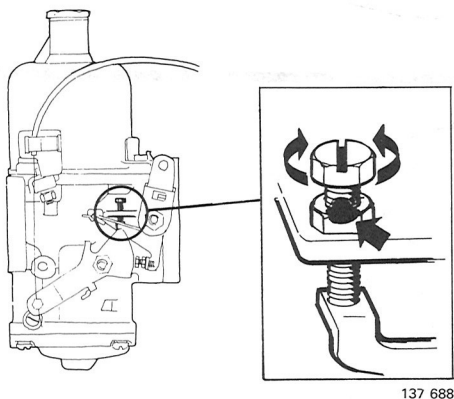
**Check/adjust CO**

If CO cannot be set to specification throttle valve must be reset and CO adjusted until correct.

B 23

**Set idle adjustment screw**

Unscrew screw 4 turns from bottom position.



B 24

**Set throttle valve**

Set engine speed to **18.3–20.0 r/s** (1100–1200 r/min) using throttle screw.

Seal screw with paint.

B 25

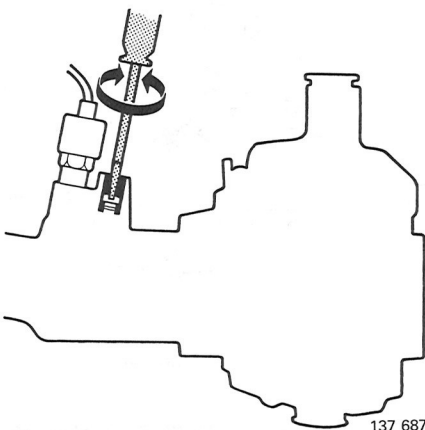
**Adjust idle speed**

Adjust with idle adjustment screw to **15.0 r/s** (900 r/min).

B 26

**Set carburettor**

See page 24.



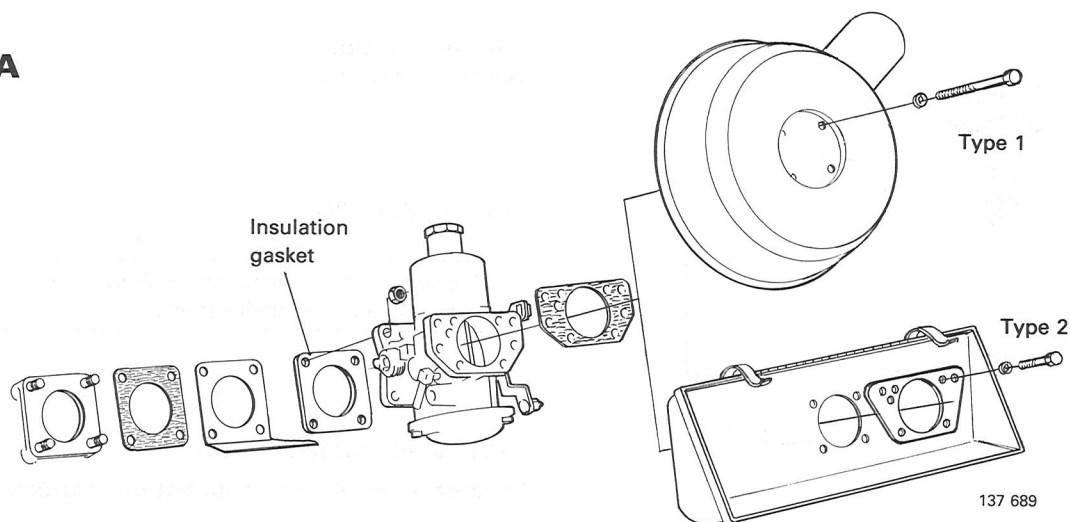
## Carburettor, removing/installing

Operations B 27–29

- Always cover opening in intake manifold after removing carburettor.
  - Use new gaskets when installing carburettor.
  - After installation, set carburettor according to method on page 24.
- B 27 A 1977–1979, B 28 A: throttle valve setting must be rechecked after installing carburettor, see page 28.

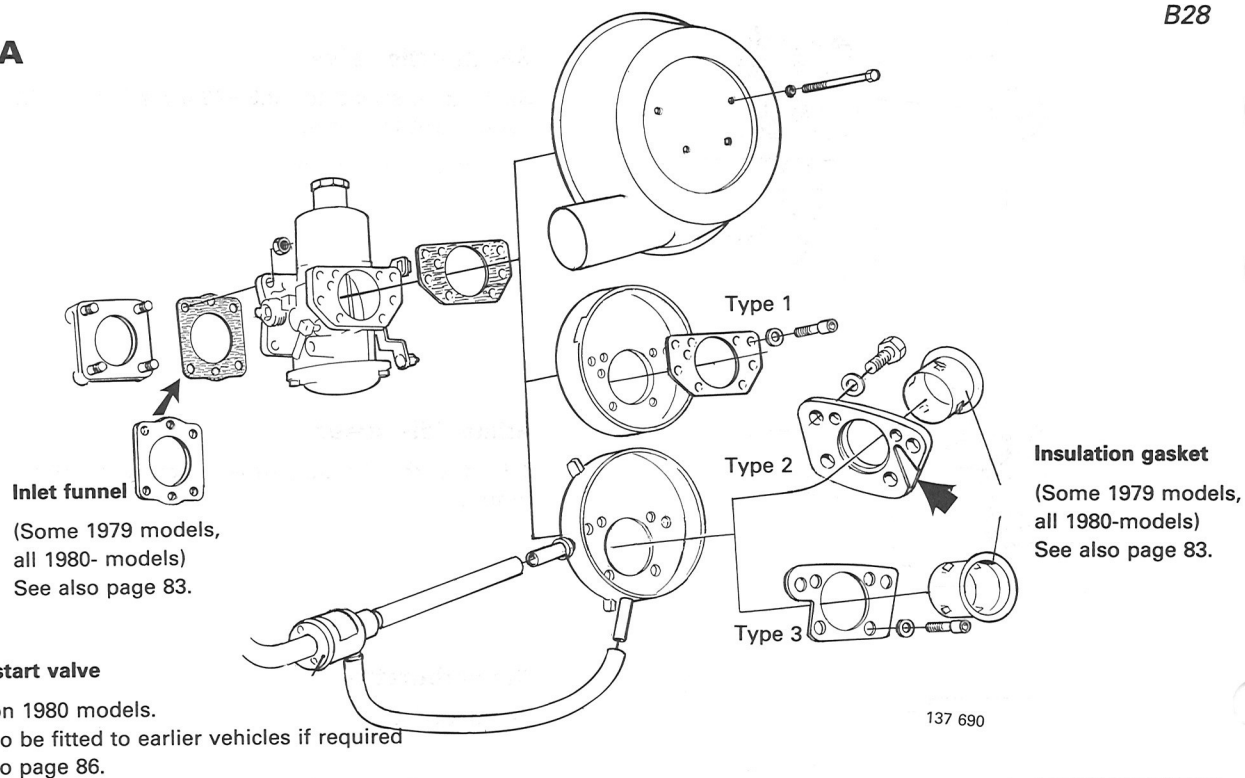
B27

### B20 A



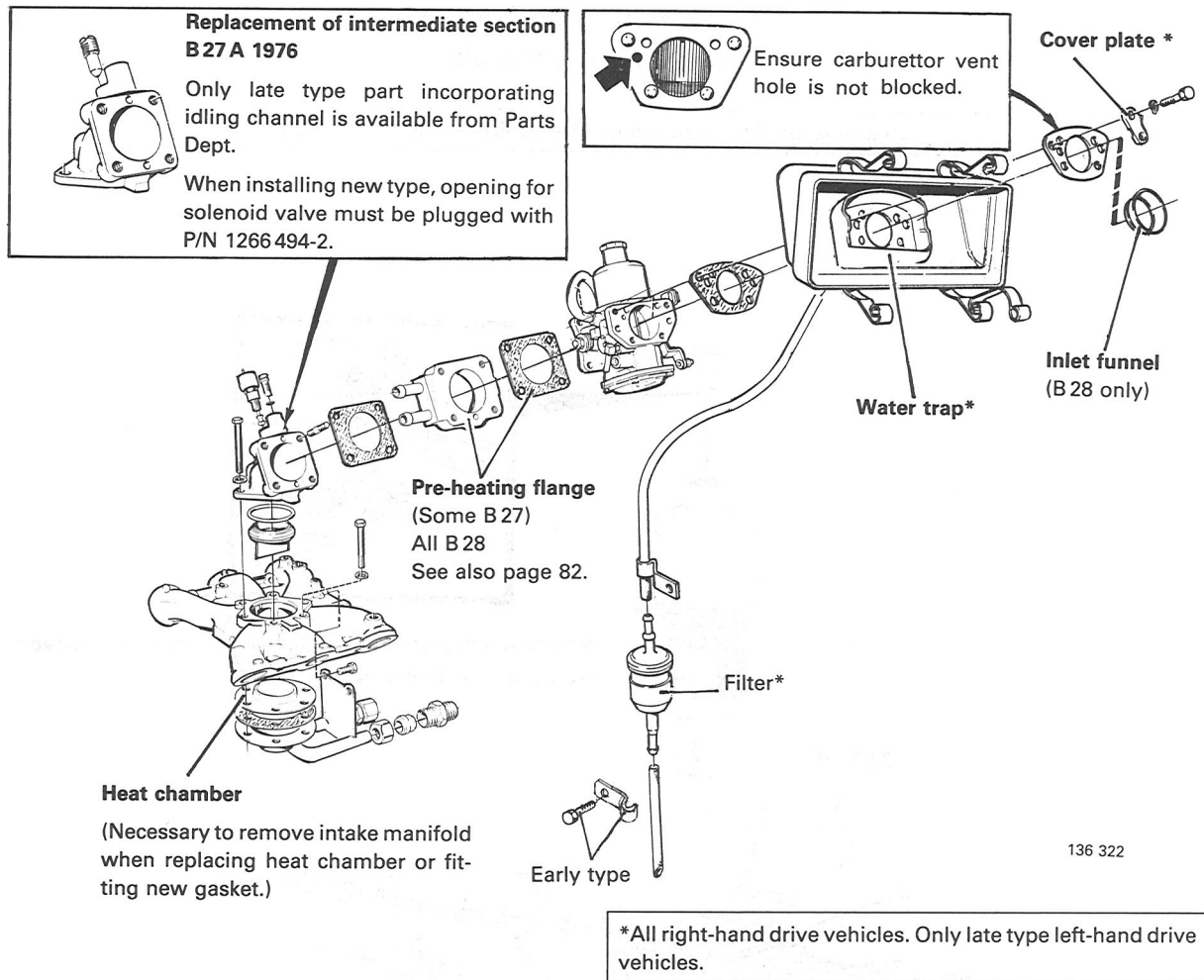
B28

### B21 A



**B27/28 A**

B29



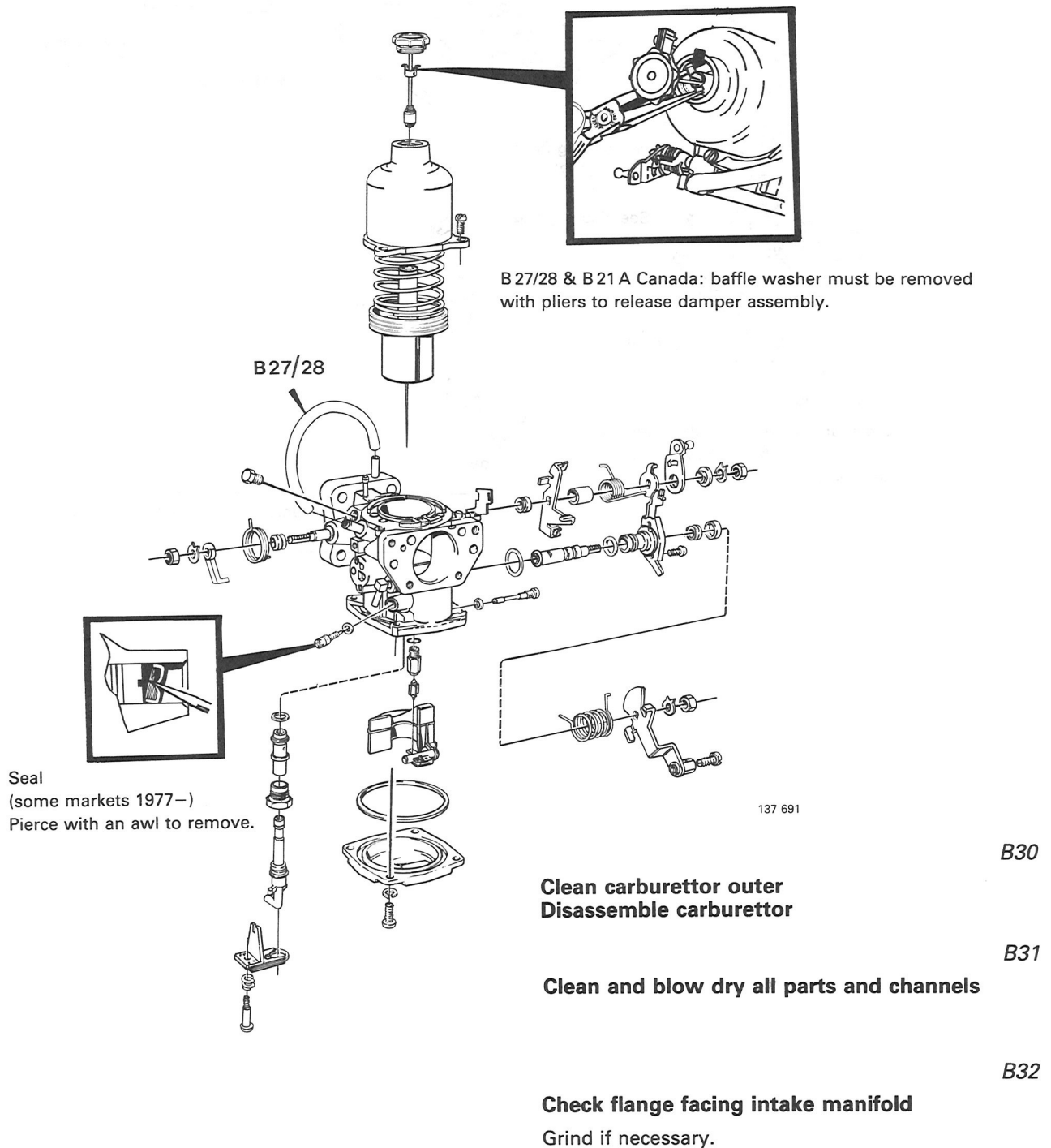
136 322

## Carburettor, reconditioning

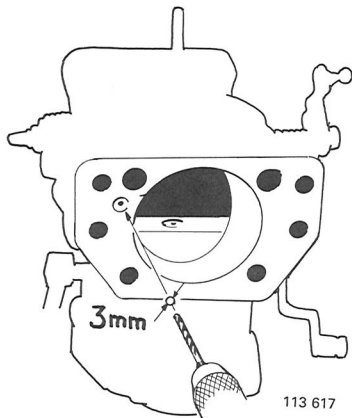
Operations B 30–61

Special tools: 2402, 2881

Use new gaskets and seals when reinstalling carburettor.







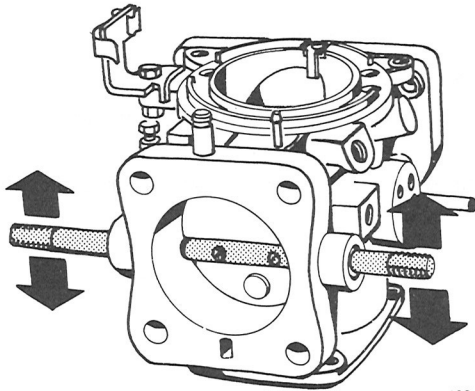
B 27 A 1976–1977

B33

**Check float chamber vent hole**

If diameter of hole is less than **3.0 mm** (0.12 in) drill out to 3.0 mm.

Rectified in production from January 1977.

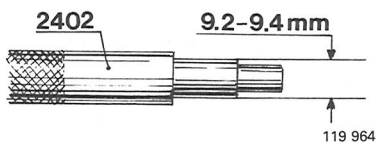


B34

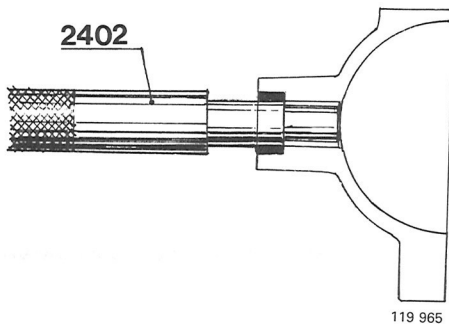
**Check throttle valve and spindle**

Check for smooth operation, etc. If loose, spindle and bushings should be replaced.

Also check throttle valve relief valve (some models only).

**Replacing throttle spindle and bushings**

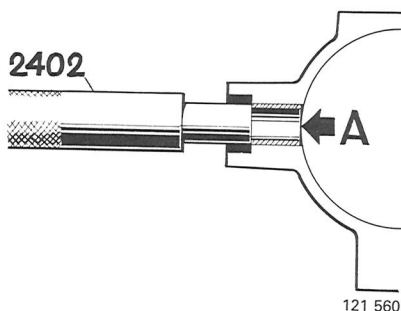
Operations B 35–39



B35

**Detach throttle valve and spindle.  
Tap out bushings with drift 2402**

**IMPORTANT!** Check that drift diameter shown adjacent is 9.2–9.4 mm. If not, grind down to size. If drift is too large, it can jam in bushing seat.

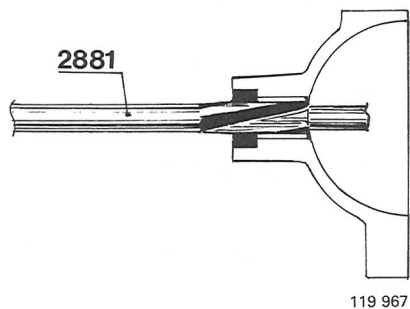


B36

**Tap in new bushings**

Use drift 2402.

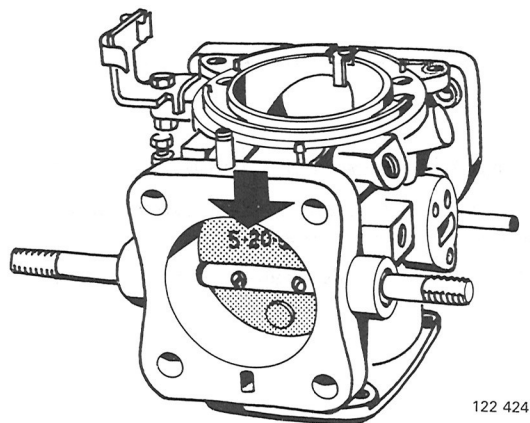
Tap in bushings until flush with edge of carburettor body. If bushings are not flush carburettor will be difficult to set.



B37

**Check that new spindle does not bind**

If necessary grind bushings with reamer 2881.

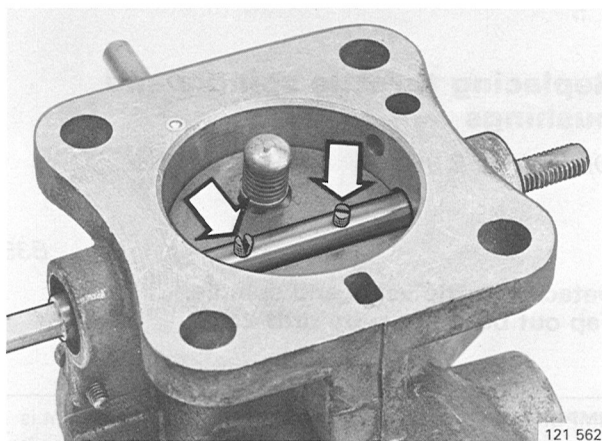


B38

**Install throttle valve and spindle**

Place spindle in position.

Install throttle valve with mark facing up and facing flange (intake manifold side).

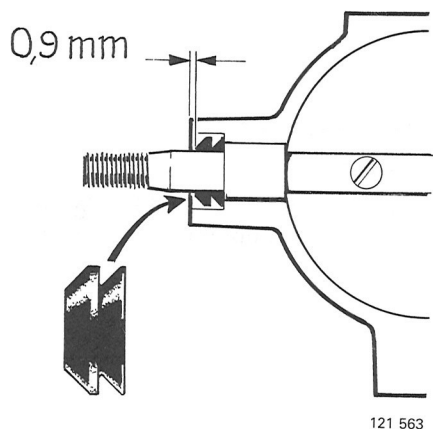
**Do not** tighten screws before centralizing throttle valve.

B39

**Centralize throttle valve and tighten screws**

Split heads of screws after tightening.

Check that valve and spindle do not bind.

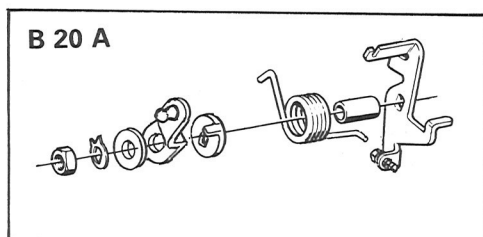


B40

**Install new throttle spindle seals**

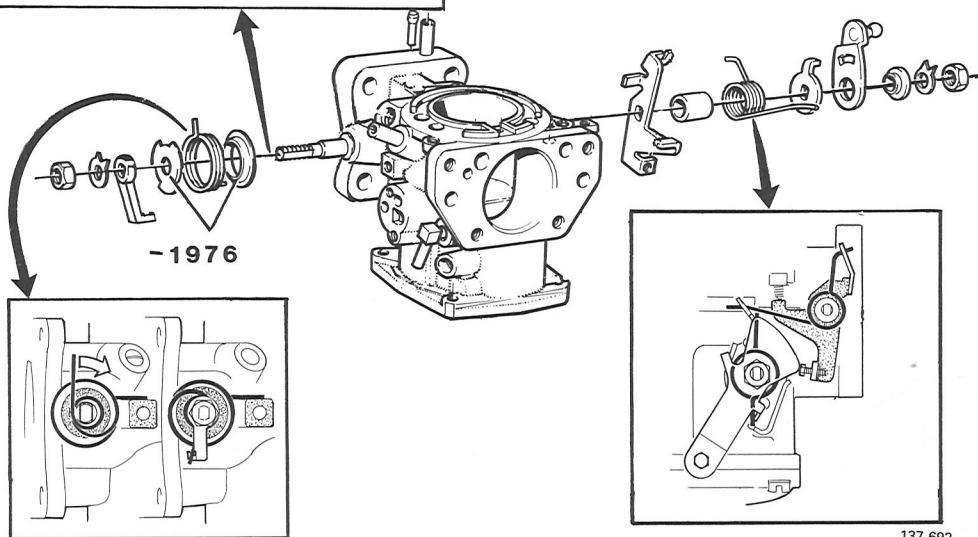
0.9 mm = 0.0035 in.

B41

**Install throttle spindle linkage**

Check that throttle and spindle do not bind.

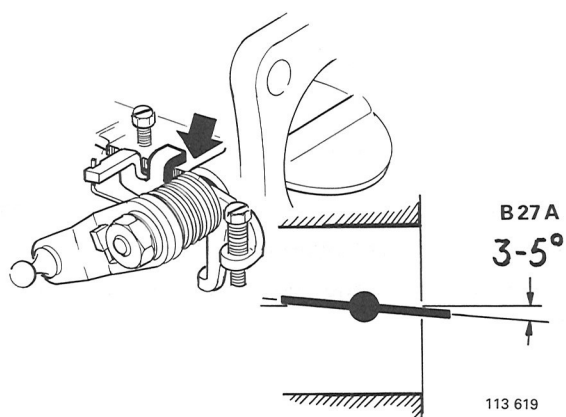
Return spring is hooked on when choke is installed.



B42

**Check opening angle of throttle valve**B 20 A, B 21 A and B 28 A =  $90^\circ$ .B 27 A =  $85-87^\circ$  (deviation from horizontal plane =  $3-5^\circ$  is small but fully visible).

Adjust angle by bending lug on throttle lever.



B43

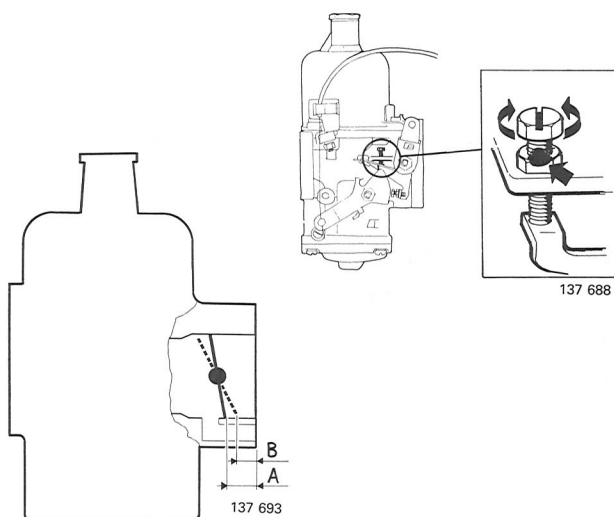
**B21 A 1978-1981****Set throttle valve**

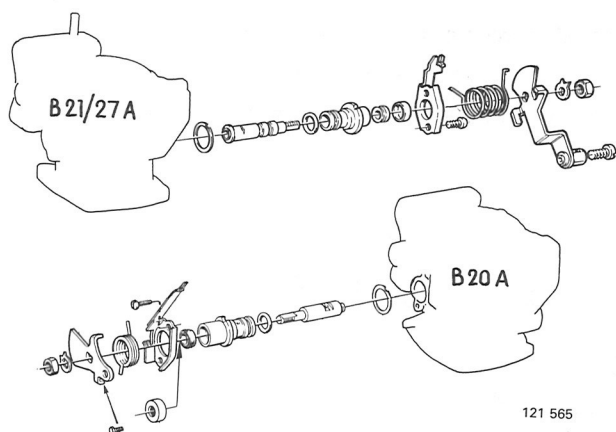
Unscrew adjustment screw until valve is fully closed.

Measure A.

Screw in screw to obtain opening of **0.7-0.9 mm** (0.028-0.035 in).

Seal screw with paint.

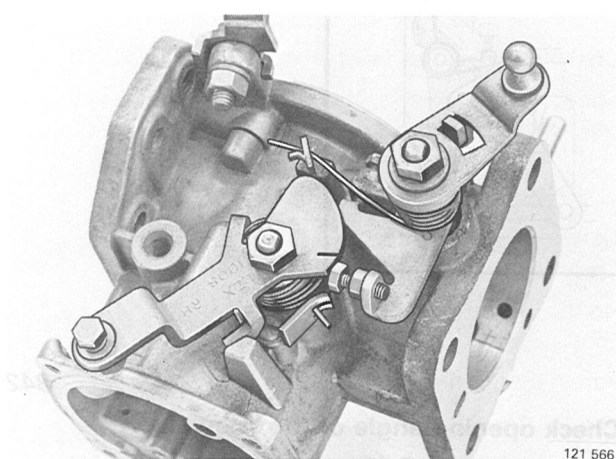




B44

#### Check choke linkage

Check for wear, damage, etc.



B45

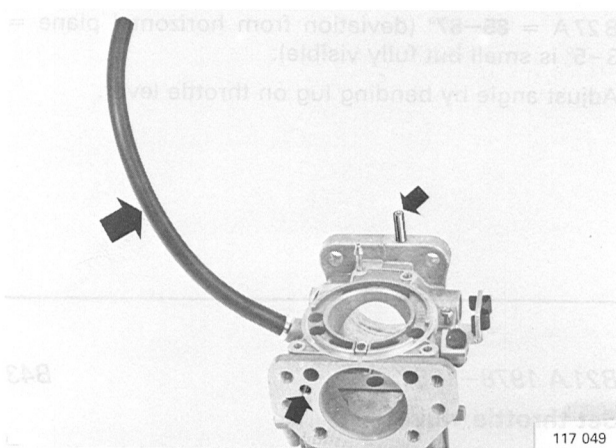
#### Install choke linkage

Oil O-ring before installing to prevent damage which could lead to fuel leakage.

Notch in gasket should face up.

Hook on throttle valve return spring.

Check that linkage does not bind.

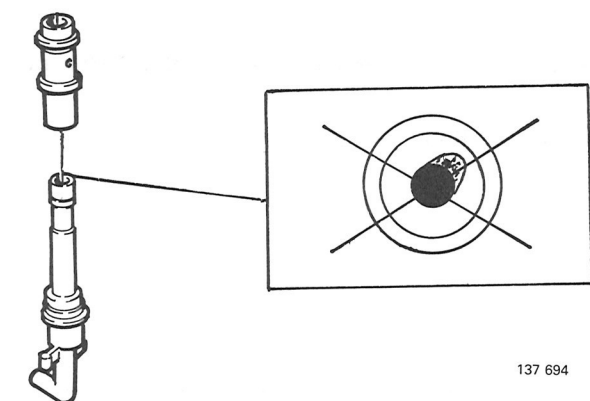


B46

B 27/28 A

#### Check lean-mixture system

Check hose for damage and make sure that channels are not blocked.



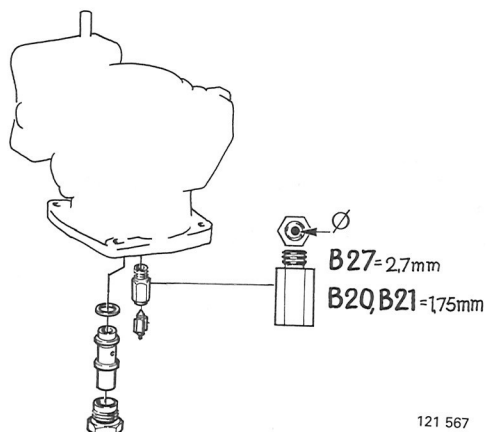
B47

#### Check fuel jets and sleeve

Check that jet does not bind.

Opening in jet should be circular in centre.

Replace loose jets.



B48

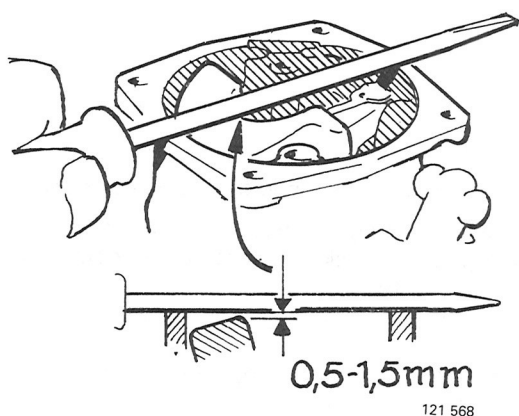
**Check needle valve**

Check for leakage.

B49

**Install:**

- needle valve
- sleeve plus seal and lock nut. (Long end of sleeve should face lock nut.)



B50

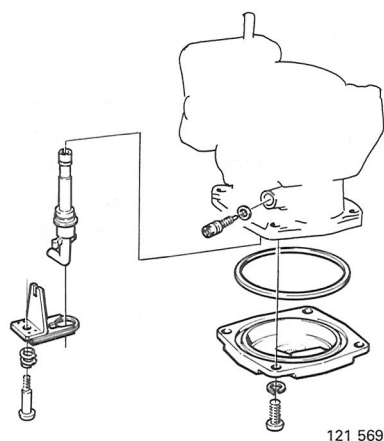
**Check and install float + spindle**

Check float for punctures. If necessary place float in water and check for air bubbles.

B51

**Check/adjust float level**Float should be **0.5–1.5 mm** (0.02–0.06 in) below the float chamber flange.

Adjust by bending steel tag.



B52

**Install:**

- jet adjustment screw
- jet + bimetal spring. Ensure that groove in link fits over adjustment screw
- retaining screw + spring
- float chamber cover + gasket (bevelled side facing needle valve)

B53

**Set fuel jet**

Unscrew adjustment screw until top of jet is in line with bridge section.

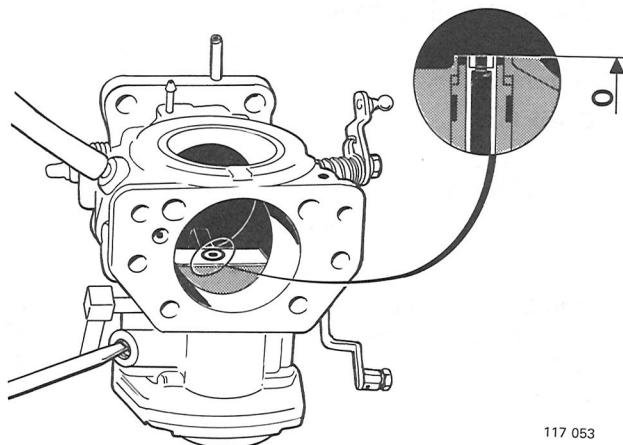
Then screw in adjustment screw:

<b>B20 A</b> .....	<b>2 ¼ turns</b>
<b>B21 A</b> Canada + Australia .....	<b>3 turns</b>
Other markets .....	<b>2 ¼ turns</b>
<b>B27 A</b> .....	<b>3 turns</b>
<b>B28 A</b> .....	<b>2 ¼ turns</b>

**Note:** Above measurements apply at 20°C (68°F).

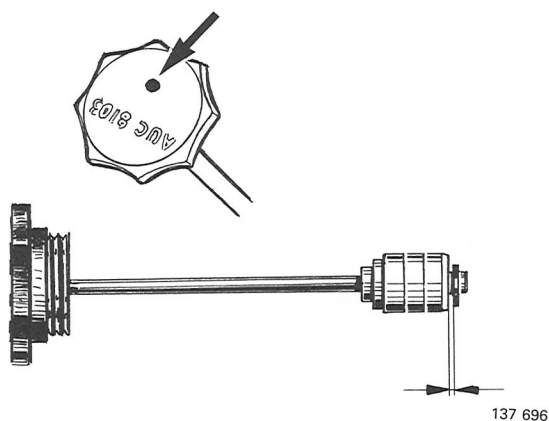
Higher temperatures = subtract ½ a turn from above values

Lower temperatures = add ½ a turn.





B54



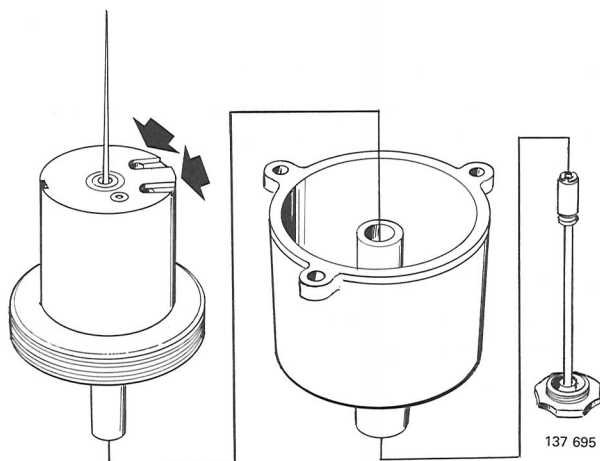
### Check damper piston

Check:

- for damage and wear
- axial clearance. Clearance = **1.1–1.7 mm**  
(0.043–0.070 in)
- vent hole for blockage. Clean if necessary.

Replace complete damper assembly if defective.

B55



### Check piston fit

Plug vent holes in piston with e.g. pieces of cork.

Insert piston + metering needle in suction chamber. Fit damper piston. Check that vent hole in damper piston cap is not blocked.

**Note:** No oil, return spring unhooked.

From position shown on adjacent illustration, piston should sink to bottom in:

<b>B 27/28 A, B 21 A</b> Canada	
(piston+ball bearing) .....	<b>3–5 sec</b>
other markets .....	<b>5–7 sec</b>

**If piston drops too quickly (i.e. worn piston):** renew piston and suction chamber. Both parts are carefully matched in production and must be replaced together.

**If piston drops too slowly:** check and clean contact faces. Use a fine emery cloth to smoothen out any unevenness.

**IMPORTANT!** Piston/suction chamber must under no circumstances be filed.

B56

### Check metering needle

Slacken retaining screw and withdraw needle + retainer from piston.

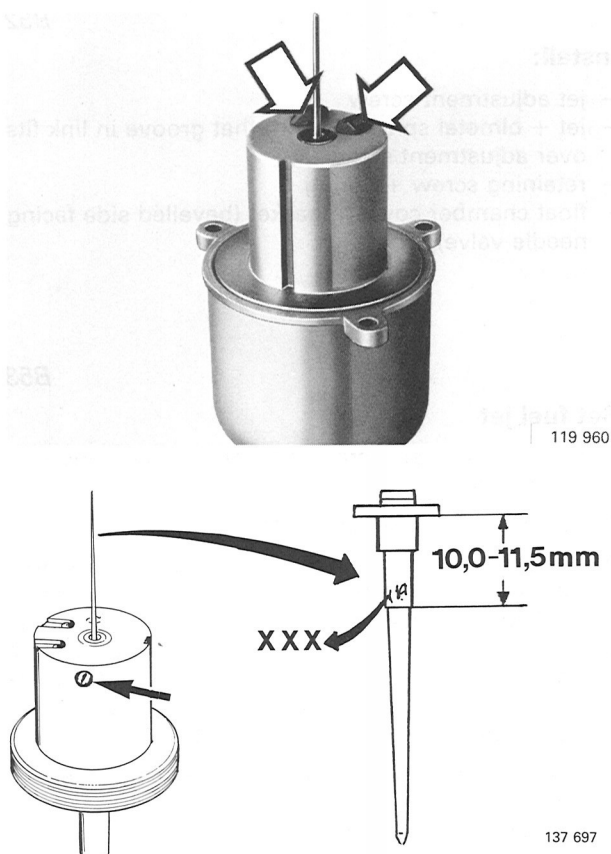
Check for:

- damage and wear
- position of collar.

Replace needle if defective.

Metering needle designation.

<b>B 20 A</b> 1976 Sweden .....	<b>BDG</b>
Other models .....	<b>BCJ</b>
<b>B 21 A</b> .....	<b>BDJ</b>
<b>B 27 /28 A</b> .....	<b>BDK</b>

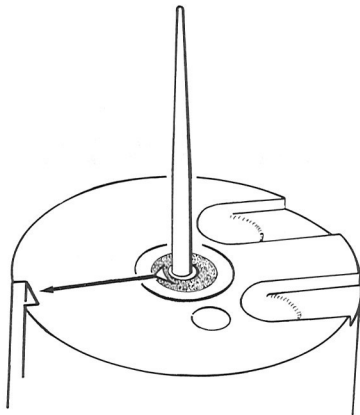


B57

**Install metering needle and retainer**

Alignment mark on retainer must point towards groove in piston.

Retainer must be flush with piston.



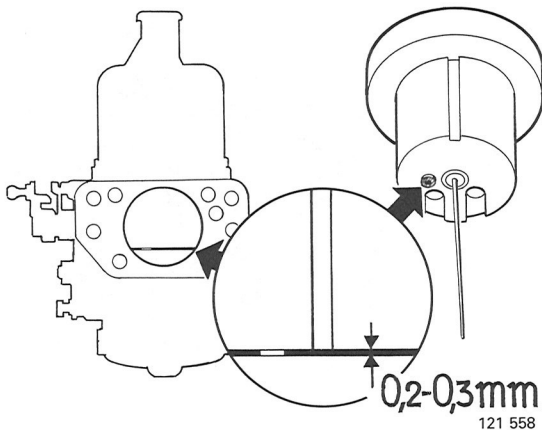
137 698

B58

**Check piston—bridge clearance**

If clearance is not **0.2–0.3 mm** (0.008–0.012 in), adjust by placing/removing paper beneath plastic plug.

To remove plug, insert screw and turn. To fit, tap plug in with a hammer.



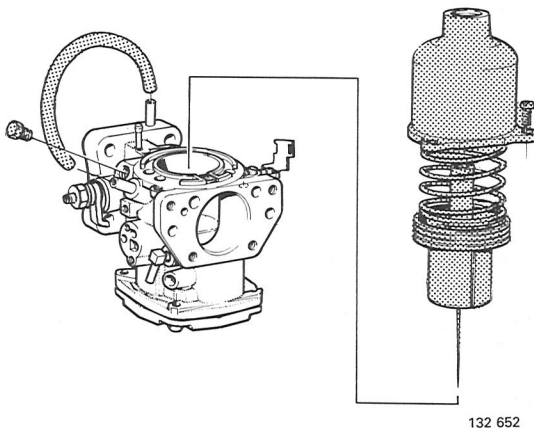
121 558

B59

**Install:**

- piston
- return spring
- suction chamber
- plug (solenoid valve as applicable)
- hose (B 27/28)

Check for smooth operation of piston.



132 652

B60

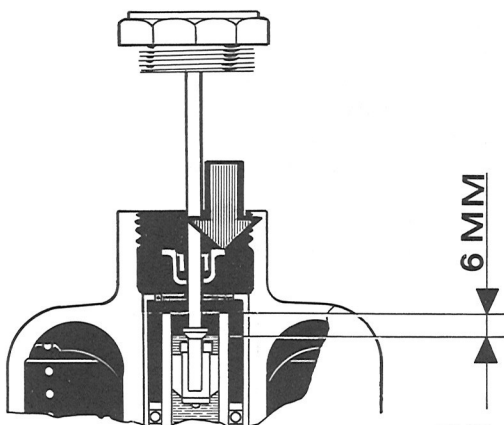
**Fill oil**

**B 20, B 21** ..... **ATF**  
**B 27/28** ..... **Engine oil SAE 10W–40**  
 (10W–50)

B61

**Install damper piston**

B 27/28 and B 21 A Canada: attach baffle washer.

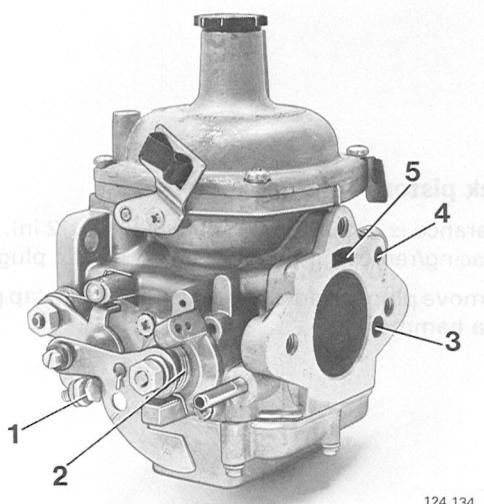


117 056

Installing carburettor .....	page 30
Setting carburettor .....	page 24

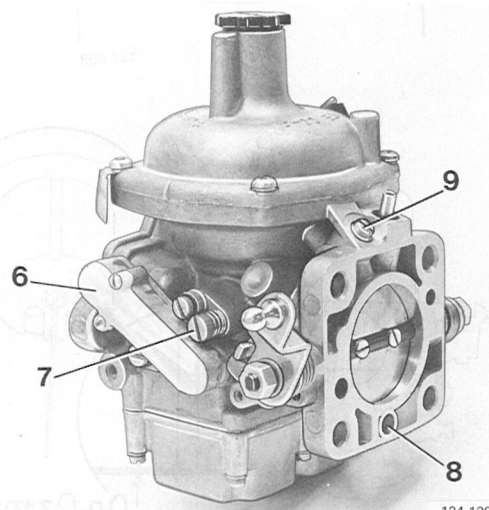
## C. Solex (Zenith) 175 CD carburettor

The B 17–21 A carburettor is shown below. On both B 20 A the throttle linkage is located on the opposite side to that shown below.



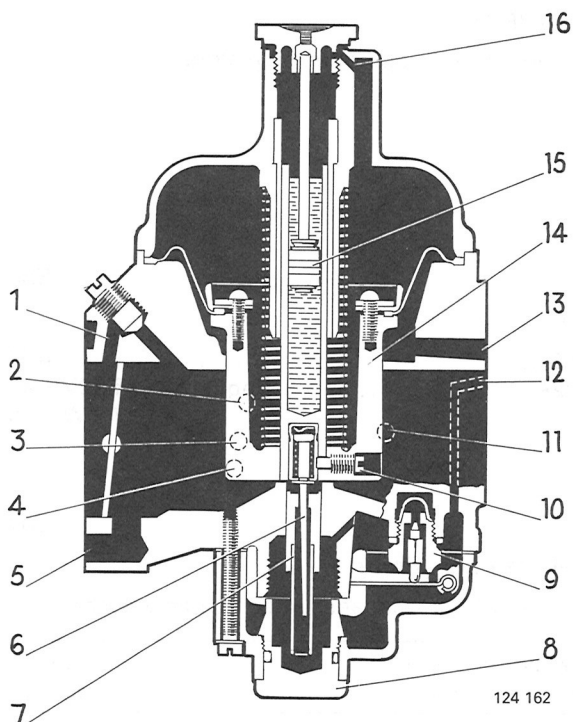
124 134

- 1 Idle adjustment screw
- 2 Choke
- 1980–1984 models are also equipped with a vacuum valve
- 3 Air channel to temperature compensator and volume screw
- 4 Float chamber vent hole
- 5 Channel to chamber beneath suction piston



124 139

- 6 Temperature compensator
- 7 Volume screw
- 8 Idling channel 1978–1984
- 9 Solenoid valve terminal (early types only)



124 162

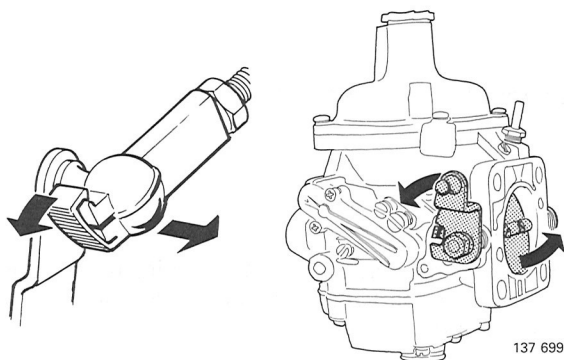
- 1 Solenoid valve channel (early types only)
- 2 Auxiliary air channel from volume screw
- 3 Auxiliary air channel via temperature compensator
- 4 Channel from choke
- 5 Idling channel 1978–1984
- 6 Metering needle
- 1978–1984: adjustable needle
- 7 Fuel jet
- 8 Plug 1975–1977
- 9 Needle valve
- 10 Metering needle retaining screw
- 11 Air channel to choke
- 12 Float chamber vent hole
- 13 Channel to chamber beneath suction piston
- 14 Suction piston
- 15 Damper piston
- 16 Vent hole for damper assembly

## Carburettor, tuning and adjustment

Operations C1–29

A B21 A carburettor is shown in this section. Procedures do however apply to B20 A and B17–19.

See also instructions on page 12.



137 699

C1

### Disconnect link rod from carburettor

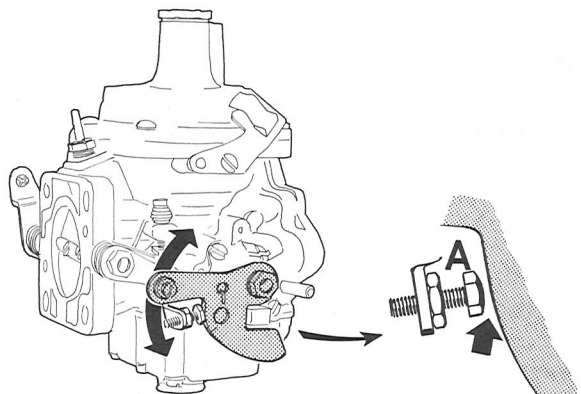
Release lock tab on ball socket and lever off link rod.

C2

### Check throttle valve and spindle

Check for smooth operation of valve and spindle.

If spindle is loose carburettor should be reconditioned.



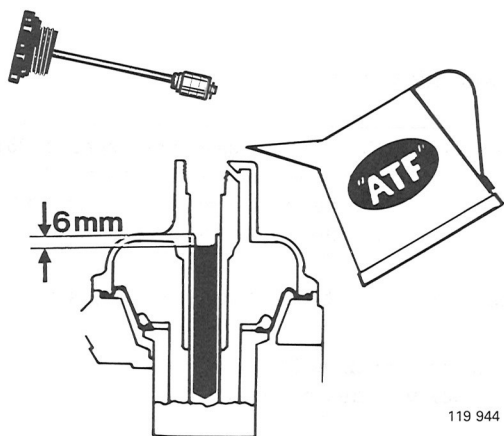
121 571

C3

### Check choke linkage

Check for full movement of lever when choke is withdrawn.

Depress choke. Check that lever is at lower stop position and that fast idle adjustment screw A does not contact lever. Adjust if necessary.

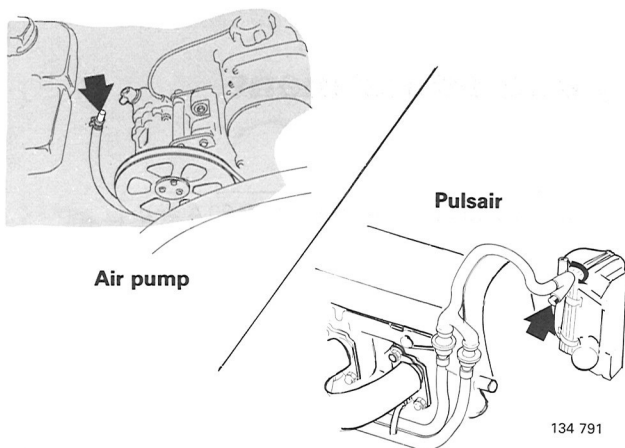


119 944

C4

### Check damper oil level

If necessary top up with ATF.



C5

### Disconnect air pump/Pulsair system as applicable

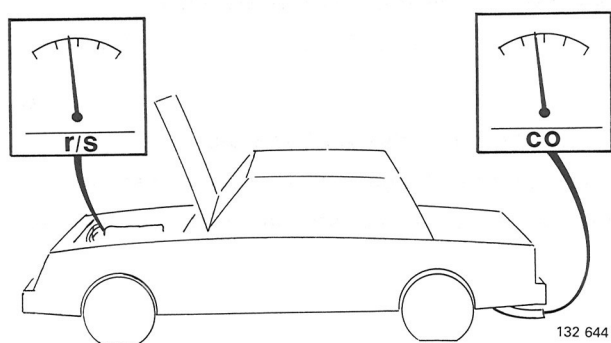
(Carburettor setting will be incorrect if air pump/Pulsair system is not disconnected.)

Disconnect hose. Plug end of hose or crimp with pliers 2901.

C6

### Connect tachometer and CO meter

C7



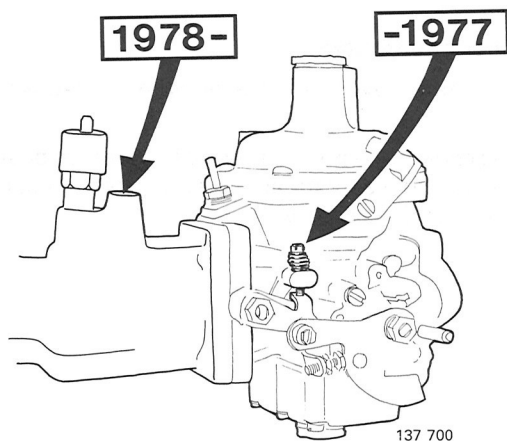
### Warm-up engine

Warm-up engine at 25 r/s (1500 r/min) until radiator thermostat opens. (Upper radiator hose becomes warm when thermostat opens.)

C8

### Set idle speed

B 20 A ..... 11.7 r/s (700 r/min)  
B 17-19 A-21 A 1975–1977 ..... 14.2 r/s (850 r/min)



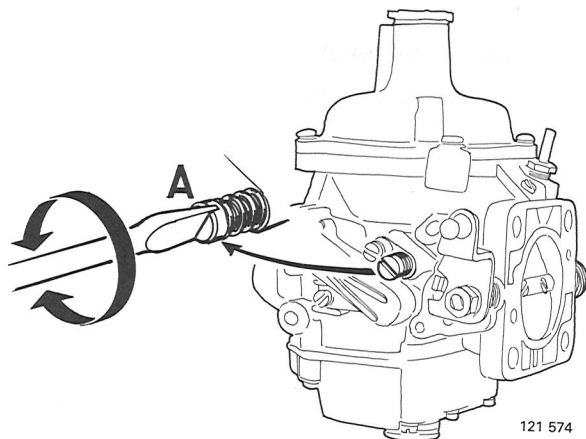
B 17-19-21 A 1978–1984 ..... 15.0 r/s (900 r/min)

**Note:** If idle speed cannot be set with flow regulating screw throttle valve must be set according to page 49.

C9

### Checking/adjusting CO

Before recording CO content increase engine speed to 25 r/s (1500 r/min) so that cold fuel enters carburettor. Then reduce engine speed to idle and tap suction chamber lightly to ensure that suction piston returns to original position.



Volume screw A can be used for small adjustments of CO.

- Clockwise increases CO
- Anti-clockwise decreases CO



CO content %	Checking
<b>B 17 A</b> 1979–1984 .....	1.5–3.0
<b>B 19 A</b> 1977 .....	2.0–4.0
1978 Italy .....	2.0–3.5
Other markets .....	1.5–3.0
1979–1984 .....	1.5–3.0
<b>B 20 A</b> 1975 .....	1.5–4.0
1976 .....	0.5–4.0
<b>B 21 A</b> 1975–1977 .....	1.5–4.0
1978 Sweden .....	1.5–3.0
Australia+Canada ..	3.5–5.5
Other markets .....	2.0–3.5
1979–1980 Australia	
+Canada .....	2.5–4.0
Other markets ..	1.5–3.0
1981–1984 Canada .....	2.5–4.0
Other markets ..	1.5–3.0

Correct CO

C21

Incorrect CO 1975–1977

C10

Incorrect CO Canada 1982–1984

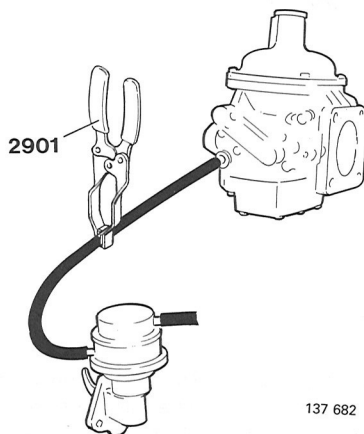
C16

Incorrect CO 1978–1984

C19

**Adjusting CO content 1975–1977**

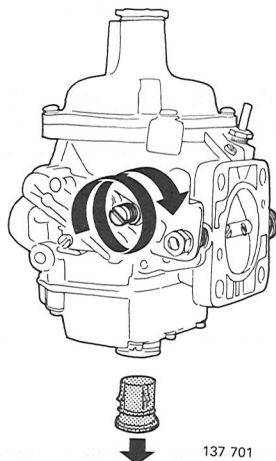
Operations C 10–15



C10

**Drain fuel from carburettor**  
**Turn off ignition**

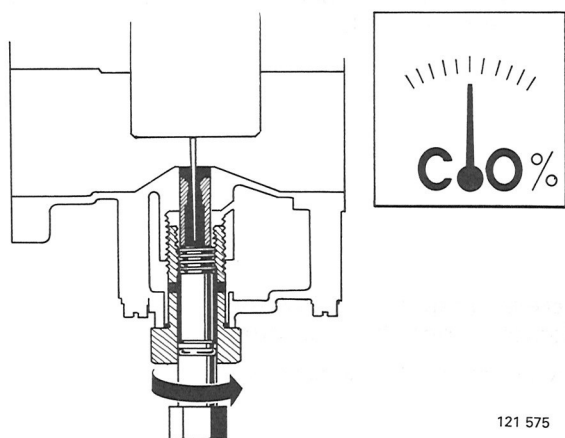
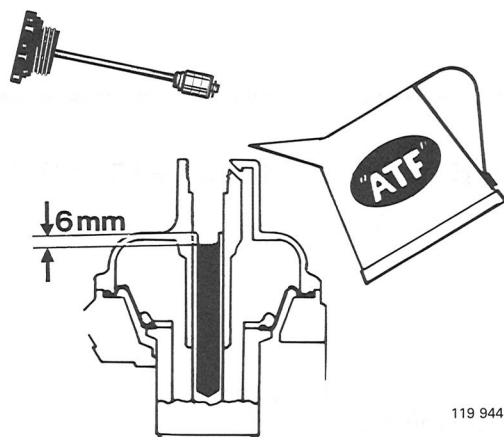
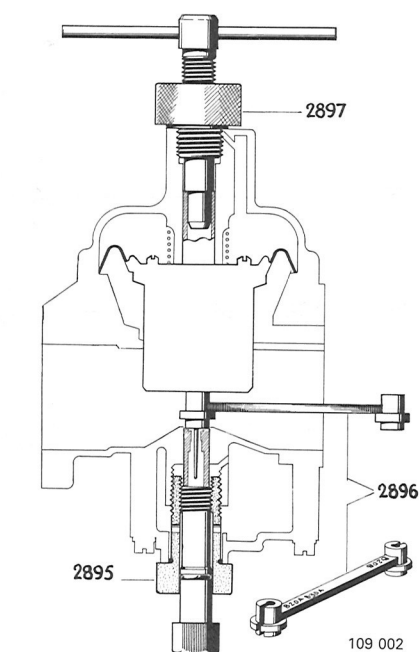
Block hose between fuel pump and carburettor using crimping pliers 2901.



C11

**Screw in volume screw fully**  
**Remove float chamber plug**

Pry out plug with a screwdriver.



CO content %	Setting
B 19 A 1977 .....	3.0
B 20 A 1975 .....	2.5
1976 .....	1.5
B 21 A 1975-1977 .....	2.5

C12

**Position press tool 2895**

Unscrew spindle to rubber ring on tool. Then mount tool on carburettor.

C13

**Basic-set fuel jet**

Place spacer **2896** between suction piston and jet. **Note:** Identification mark 'B 20 B' should face up on all engine types.

Check for clearance between end of drift and bridge section of carburettor. If necessary lift up jet with **2895**. Then unscrew tool to rubber ring.

Remove damper piston and position press tool **2897**.

Take care not to damage cap.

Screw in **2897** until end contacts carburettor bridge. Carburettor is now set to give rich fuel-air mixture.

Remove press tool **2897** and drift **2896**.

C14

**Top-up damper cylinder**  
**Fit damper piston**

Use ATF.

C15

**Adjust CO**

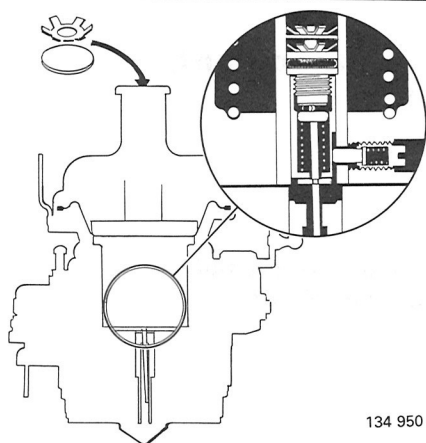
Before recording CO content increase engine speed to 25 r/s (1500 r/min) so that cold fuel enters carburettor. Then reduce engine speed to idle and tap suction chamber lightly to ensure that piston returns to original position.

Start engine.

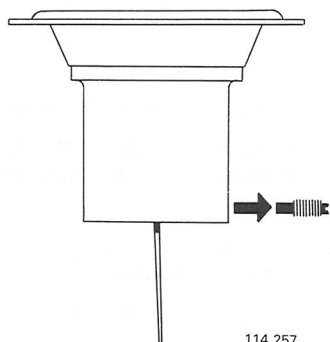
Push up fuel jet with **2895** until correct CO is obtained. Then unscrew **2895** approx. 1/4 turn after each adjustment. This is necessary to prevent press tool affecting position of jet and CO.

Proceed to

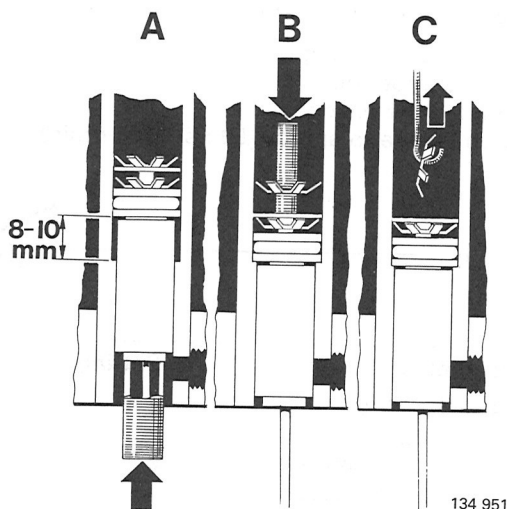
C21



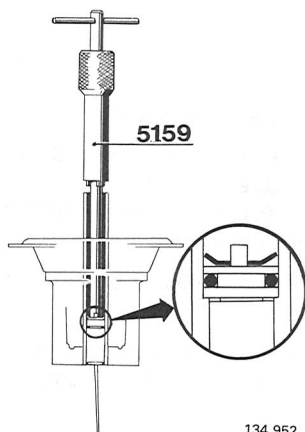
134 950



114 257



134 951



134 952

## B21 A Canada 1982–1984 Removing seal

Operations C 16–18

To meet legal requirements, adjustment screw is sealed with a disc and tab washer.

C16

### Remove:

- suction piston from carburettor
- metering needle retaining screw

C17

### Remove seal

Push up metering needle and adjustment screw approx. 8–10 mm in to damper cylinder. Use for instance a tube (ext. diam. = max 7 mm, int. diam. = min 3 mm, length = approx. 100 mm).

Then press adjustment screw down to bottom position. Upper lock washer should remain at the top. Use a punch (max. diam. = 3 mm).

Turn lock washer on side and withdraw it with a piece of bent steel wire.

Shake out flat washer.

Press lower lock washer into position with special tool 5159.

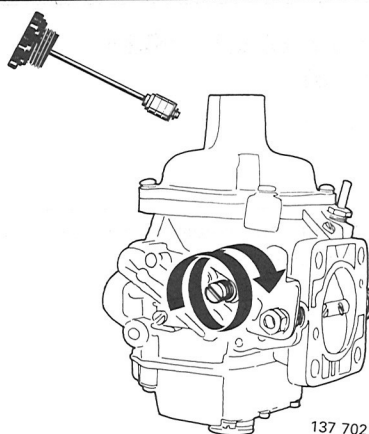
C18

### Install:

- metering needle retaining screw
- suction piston.

Proceed to

C19

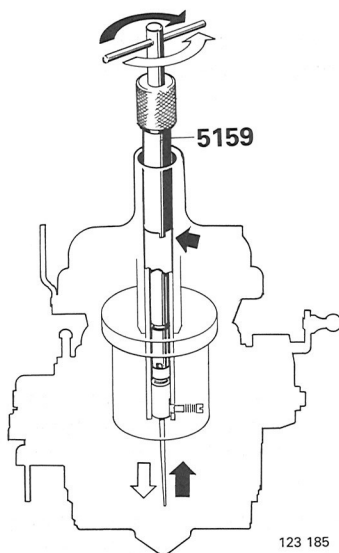


## Adjusting CO content, 1978–1984

Operations C19–20

C19

**Screw in volume screw fully**  
**Remove damper piston**



C20

### Adjust CO content (metering needle position)

Use special tool **5159**. Make sure that tool engages suction piston properly or diaphragm may be damaged when adjusted.

- **Clockwise** rotation **increases** CO
- **Anti-clockwise** rotation **reduces** CO

**Note:** Adjustment range = **4 turns**. If this is not sufficient to obtain specified CO, metering needle must be set according to section at bottom of page.

Before each CO-reading:

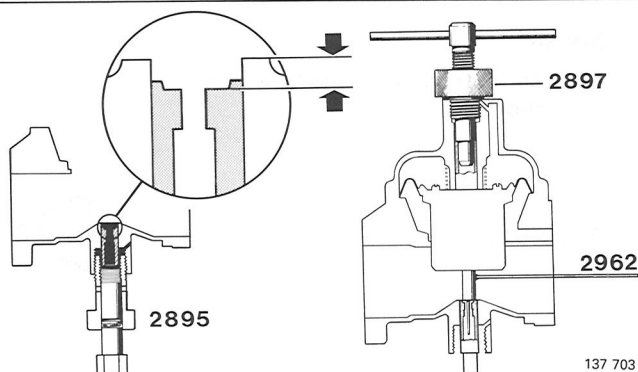
- Top-up damper oil
- Insert damper piston
- Rev-up engine to approx. 50 r/s (3000 r/min)

Proceed to

C21

CO-content %	Setting
<b>B 21 A</b> 1978 Sweden .....	2.0
Other markets .....	2.5
1979–1984 not Canada .....	2.0
1981 Canada .....	3.5
1982–1984 Canada .....	3.0

CO-content %	Setting
<b>B 17 A</b> 1979–1984 .....	2.0
<b>B 19 A</b> 1978 Italy .....	2.5
Other markets .....	2.0
1979–1984 .....	2.0



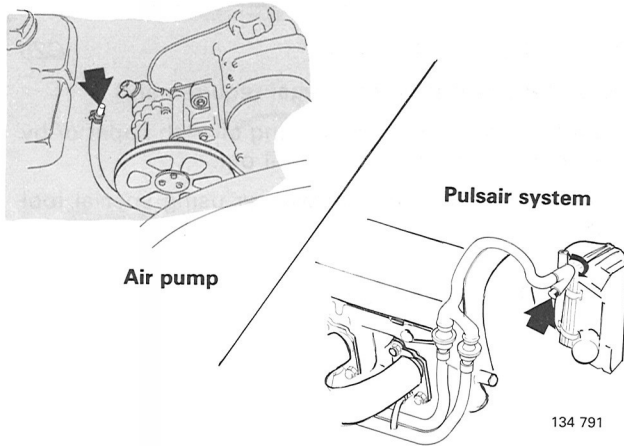
### Basic-setting metering needle

- Tip of metering needle should lie beneath carburettor bridge as follows:
  - **2.5 mm** (0.1 in) for 1978–1979 models
  - **3.0 mm** (0.12 in) for 1980–1984 models
- Use special tool **2895** to push jet upwards (float chamber removed).
- Use special tools **2897** and **2962** to push jet downwards. Take care not to damage cap.

C21

**Reconnect hose to air pump/Pulsair system**

CO should drop when hose is connected to show that system functions.

**IMPORTANT**

Do not readjust CO when hose is connected.

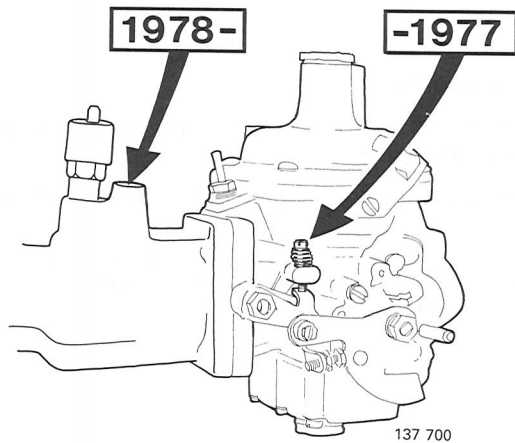
C22

**Check/adjust idle speed**

<b>B 20 A</b> .....	<b>11.7 r/s</b> (700 r/m)
<b>B 17-19-21 A</b> 1975-1977 .....	<b>14.2 r/s</b> (800 r/m)
1978-1984 .....	<b>15.0 r/s</b> (900 r/m)

B 21 A 1982-1984 Scandinavia, Australia, Canada, Switzerland 1983-1984 with AC:

Re-adjust idle speed to **15.0 r/s** (900 r/min) with **AC connected**.



C23

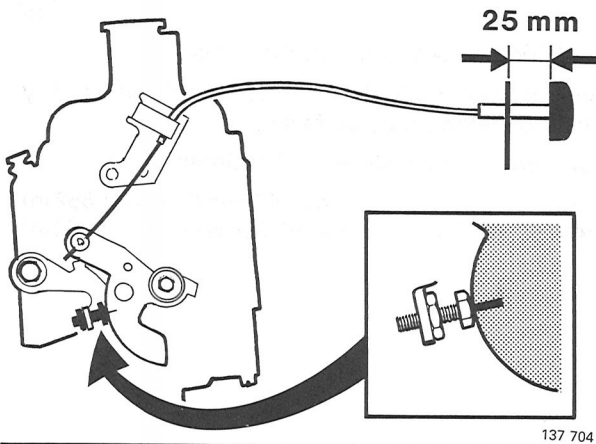
**Adjust fast idle**

Pull out choke approx. 25 mm (1 in) so that mark on choke lever is opposite fast idle adjustment screw.

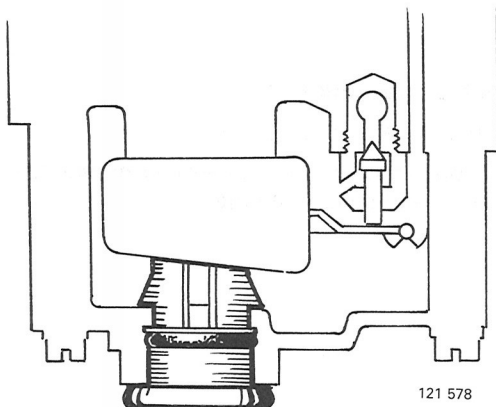
Adjust fast idle with screw to:

<b>B 20 A</b> .....	<b>18.3-25.0 r/s</b> (1100-1500 r/min)
<b>B 17-19-21 A</b> .....	<b>20.8-22.5 r/s</b> (1250-1350 r/min)

Push in choke.



C24

**Turn off engine  
Remove meters**

1975-1977

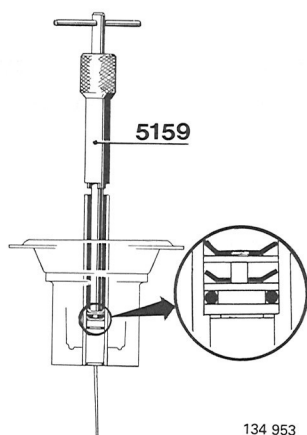
C25

**Remove press tool 2895  
Fit NEW plug in float chamber**

Drain fuel from carburettor prior to fitting new plug.

Always use **new** plug to ensure that it remains in position and seals properly.





134 953

B 21 A 1982–1984 Canada

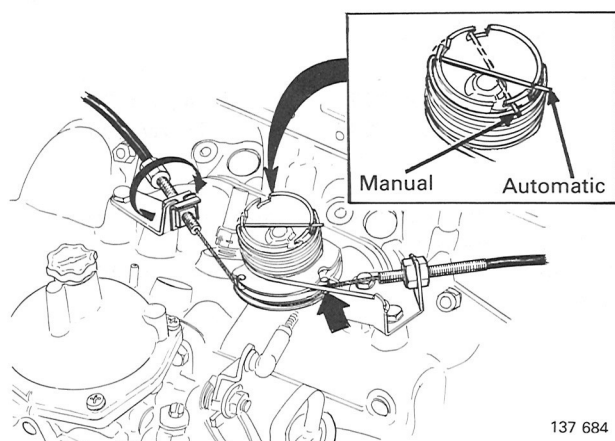
C26

**Seal adjustment screw** (legal requirement)

Drain suction piston by absorbing oil with paper or by removing piston and pouring oil out.

Fit **new** disc and **new** tab washer using special tool **5159**.

Fill ATF. Refit damper piston.



137 684

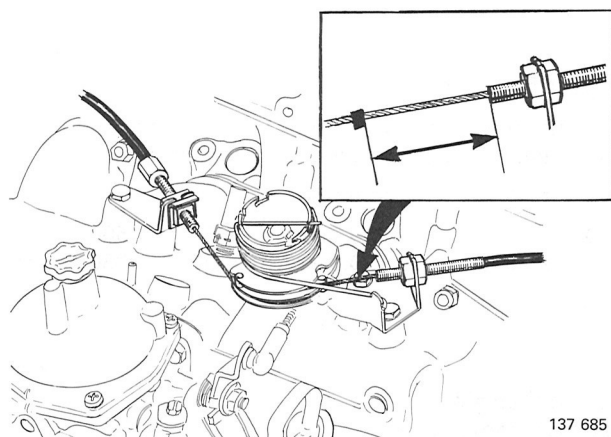
C27

**Adjust throttle cable**

When released, throttle pulley should contact stop and cable should be taut.

When fully open, pulley should contact other stop.

B 17–19–21 A: length of pulley spring may differ for manual and automatic gearboxes.



137 685

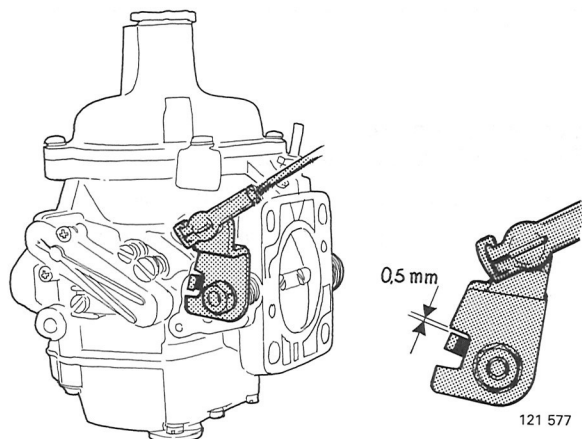
C28

**Adjust kick-down cable** (auto trans)

Depress accelerator to floor. Do not turn throttle pulley by hand or setting may be false.

At full throttle, cable sleeve—clip dimension =:

BW 35 ..... **43–47 mm** (1.694–1.852 in)  
 BW/AW 55, AW 71 ... **50.4–52.6 mm** (1.986–2.072 in)



121 577

C29

**Reconnect/adjust link rod**

Press on link rod and engage clip.

Adjust link rod to obtain a clearance of **0.5 mm** (0.020 in) between lever and spindle flange.

## Setting throttle valve, 1978–1984

Operations C 30–35

- Method below should only be used in response to complaints about dieselling (run-ning-on) or if difficulties are encountered in setting idle speed/CO in usual manner.
- If carburettor is removed from vehicle, see page 53 (C 45)

C30

**Turn on ignition**  
**Warm-up engine**

C31

**Check/adjust CO**

If CO cannot be set to specification throttle valve must be reset and CO adjusted until correct.

C32

**Set idle adjustment screw**

Unscrew screw **4 turns** from bottom position

C33

**Set throttle screw**

Bend tab on throttle lever to obtain an engine speed of **18.3–20.0 r/s** (1 100–1 200 r/min).

C34

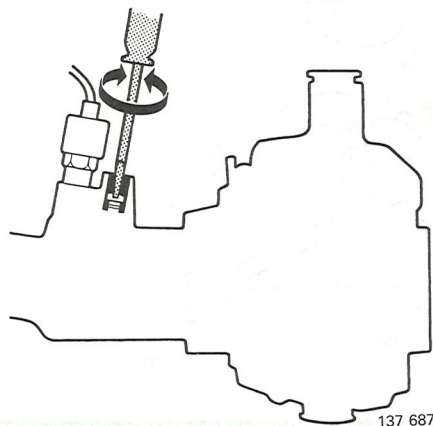
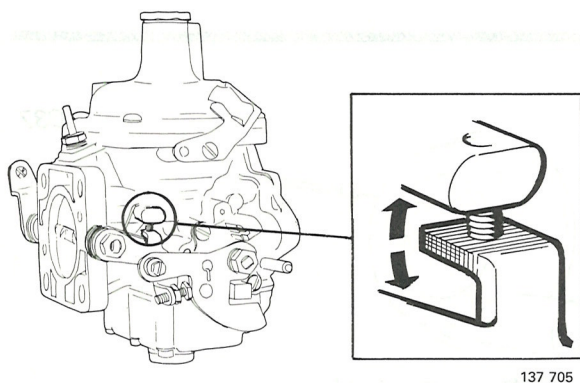
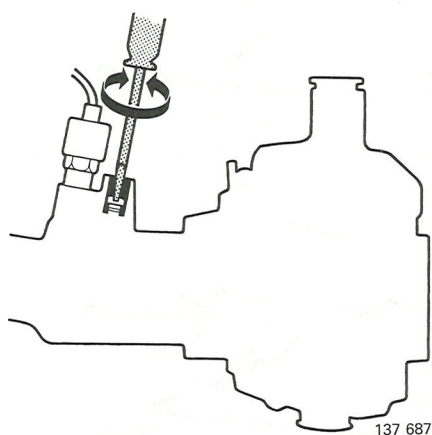
**Adjust idle speed**

Adjust with idle adjustment screw to **15.0 r/s** (900 r/min).

C35

**Set carburettor**

See page 41.



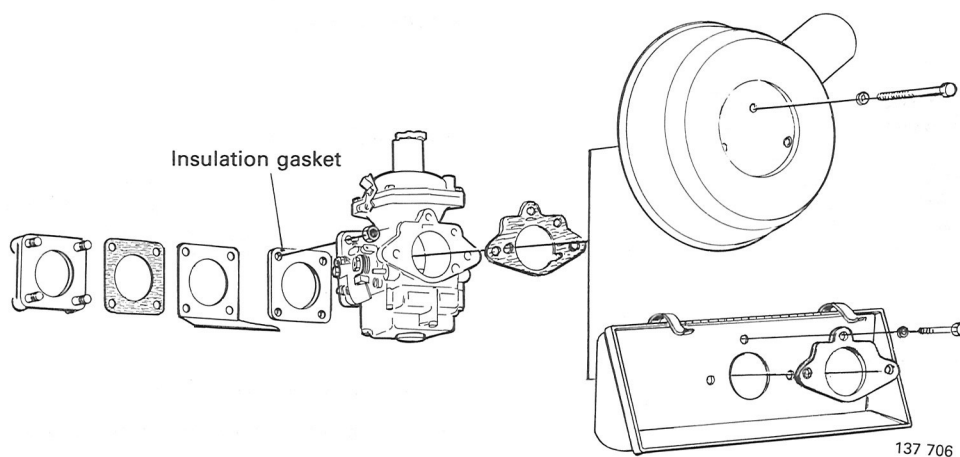
## Carburettor, removing/installing

Operations C 36–37

- Always cover opening in intake manifold after removing carburettor.
- Use new gaskets when installing carburettor.
- After installation, set carburettor according to method on page 41.

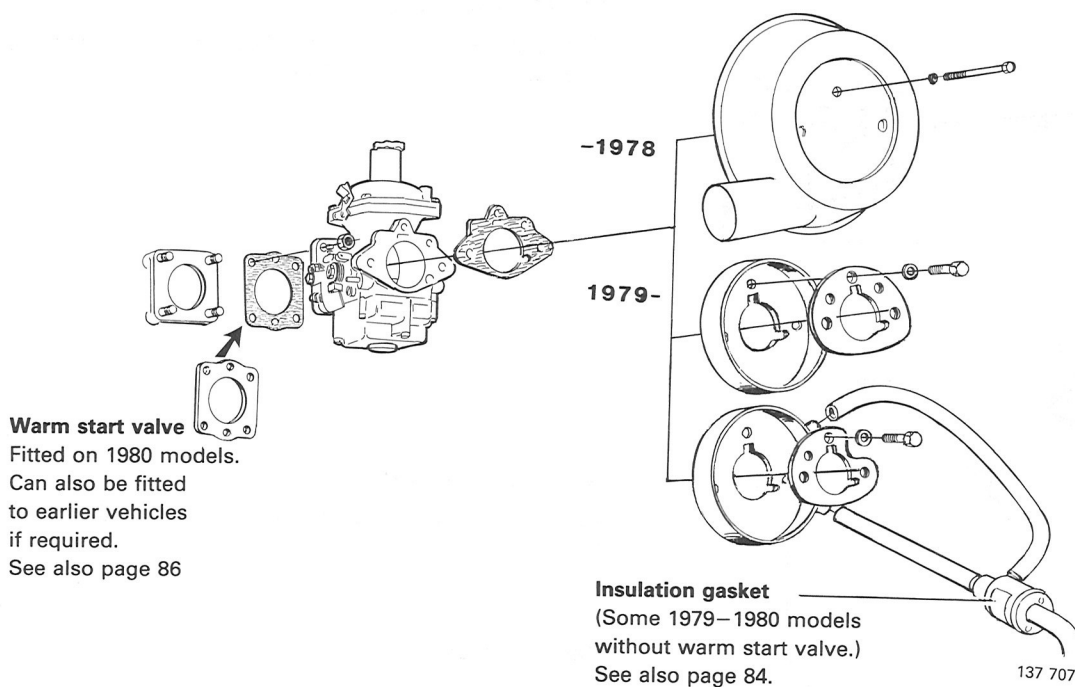
### B 20 A

C36



### B 17–19–21 A

C37



## Carburettor, reconditioning

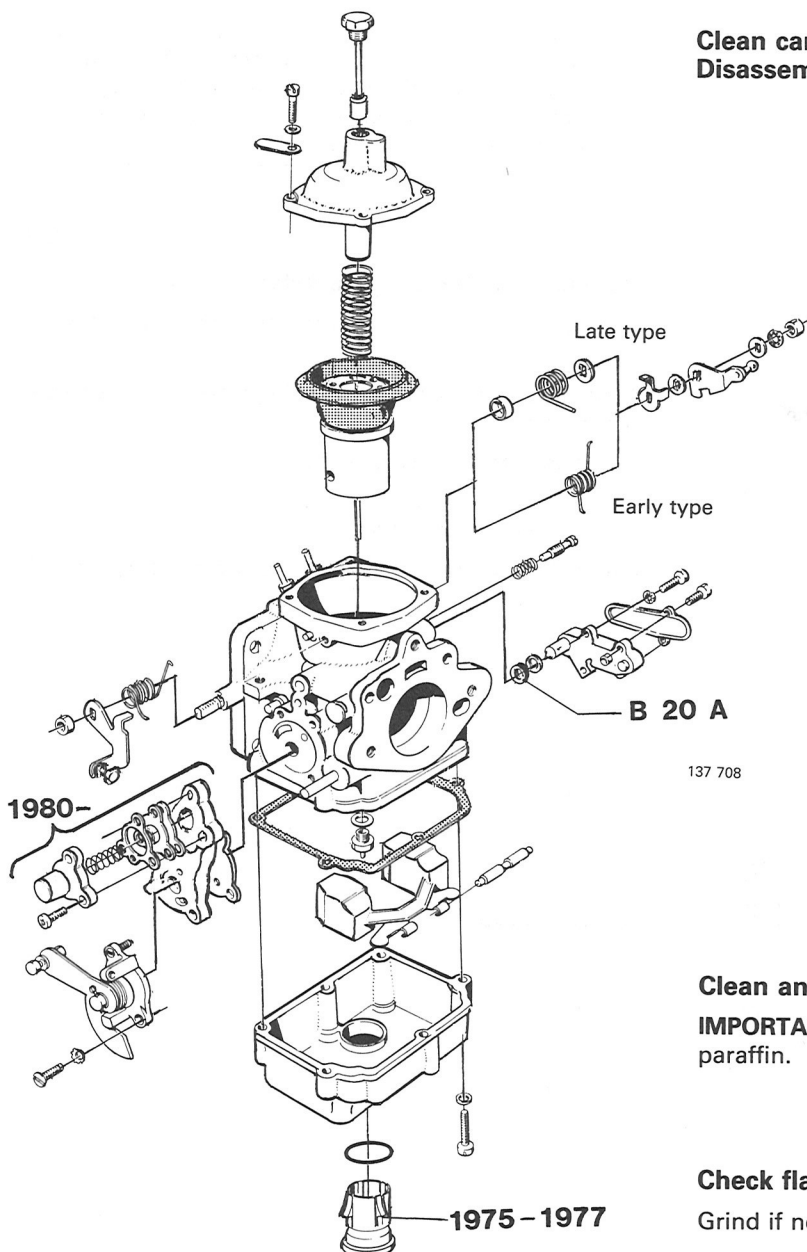
Operations C 38–69

Special tools: 2895, 2897, 2962, 5159 (1978–)

Use new gaskets and seals when reinstalling carburettor.

C38

**Clean carburettor outer  
Disassemble carburettor**



C39

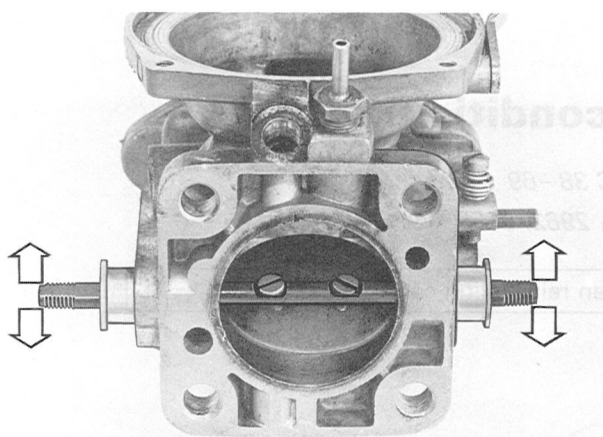
**Clean and blow dry all parts and channels**

**IMPORTANT:** Diaphragm may only be cleaned with paraffin.

C40

**Check flange facing intake manifold**

Grind if necessary.



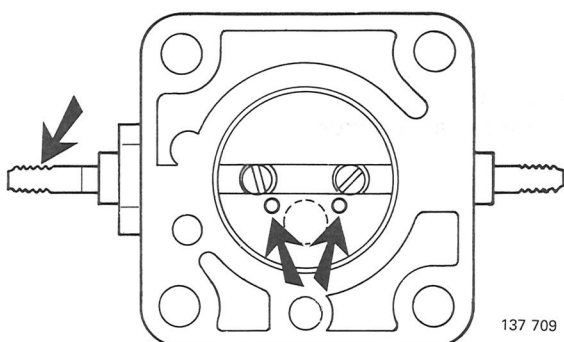
121 589

C41

**Check throttle valve and spindle**

Check for smooth operation, etc.

Also check throttle valve relief valve (some models only.)



137 709

**Replacing throttle spindle**

Throttle spindle bushings are not replaceable. Wear is however minimal as they are made of steel. If spindle assembly needs reconditioning, it is usually sufficient to replace spindle, valve and seals.

C42

**Replace spindle, throttle valve and seals**

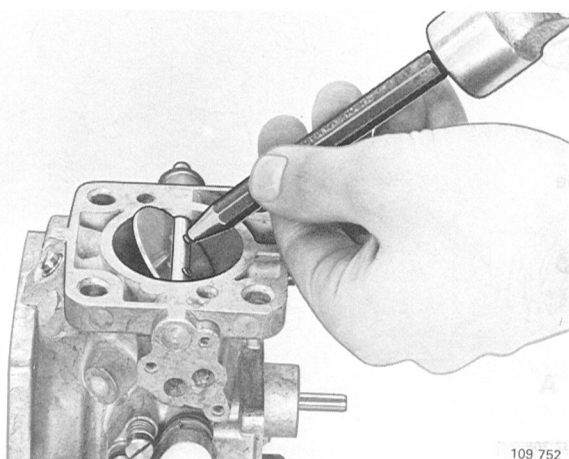
B 17–21 A: Side of spindle which protrudes most, to left.

Turn flap so that the small steel lugs face down towards bottom flange.

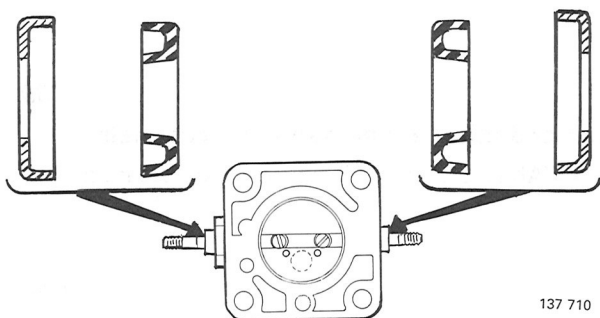
Use new screws to secure flap.

Centralize flap and tighten retaining screws. Check for smooth operation of flap.

Secure threaded end of retaining screws by tapping end with a punch.



109 752



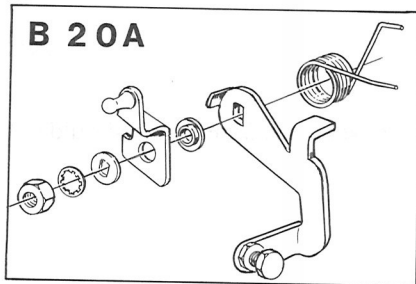
137 710

C43

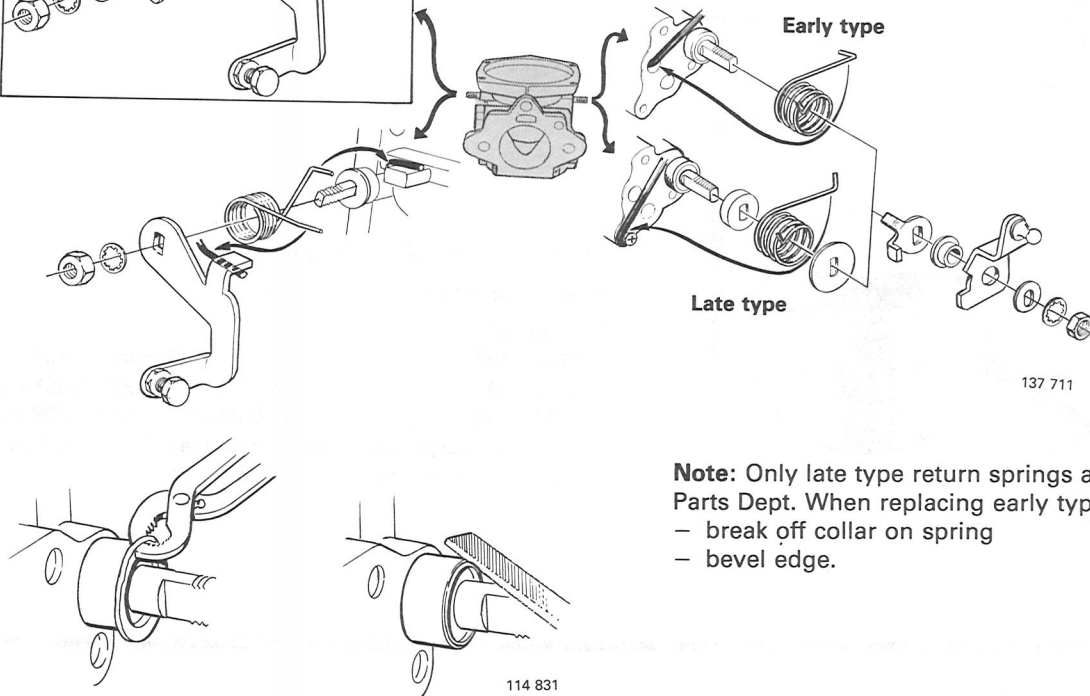
**Fit new seals**



C44

**Install throttle spindle linkage**

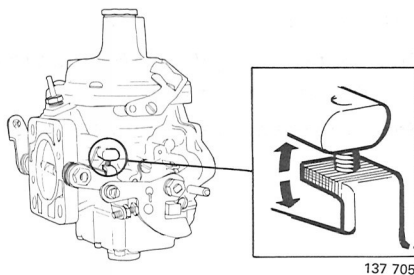
Check for smooth operation of throttle and spindle.



**Note:** Only late type return springs are available from Parts Dept. When replacing early type

- break off collar on spring
- bevel edge.

C45

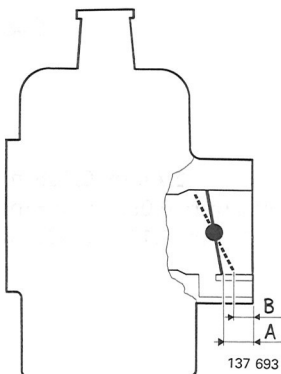


1978–1984

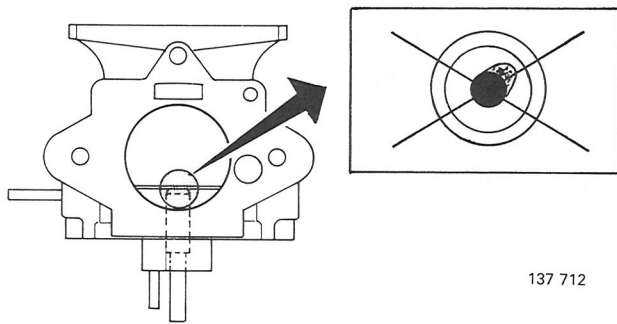
**Basic-set throttle**

Bend lever so that throttle is fully closed.

Measure A.

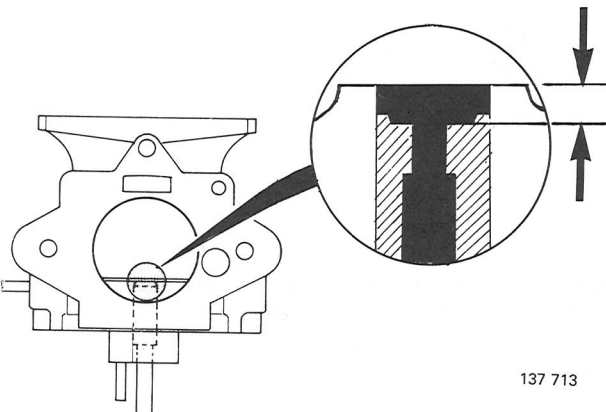
Bend tab to obtain opening of **0.7–0.9 mm** (0.028–0.035 in).

C46



### Check fuel jet

Check for damage and wear, etc. Centre hole should not be oval.



Check/adjust height of fuel jet.

Refer to operations C47–48.

Fuel jet height:

1975–1977 .....	2.7 mm* (0.106 in)
1978–1979 .....	2.5±0.2 mm (0.099±0.008 in)
1980–1984 .....	3.0±0.2 mm (0.118±0.008 in)

\* Basic-setting of jet. Carburettor set to give rich mixture. Position of jet is set exactly when setting CO-content.

## Replacing fuel jet

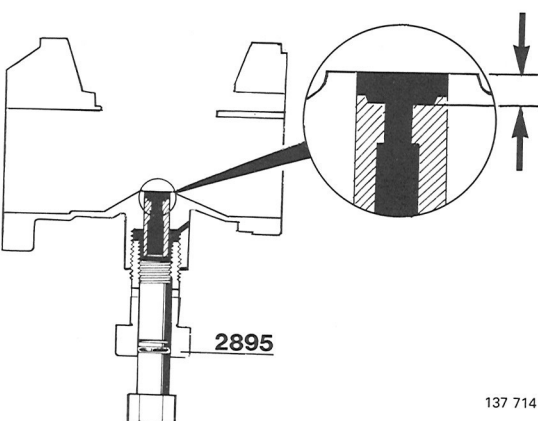
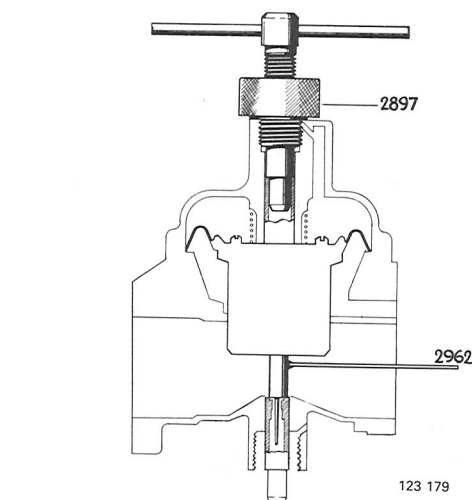
C47

### Press out jet

Install suction piston and cap.

Press out jet using drift **2962** and press tool **2897**. Take care not to damage cap.

Remove suction piston and cap.



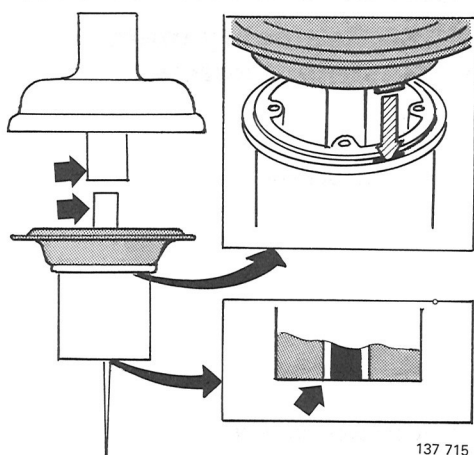
### Press in new jet

Use press tool **2895**.

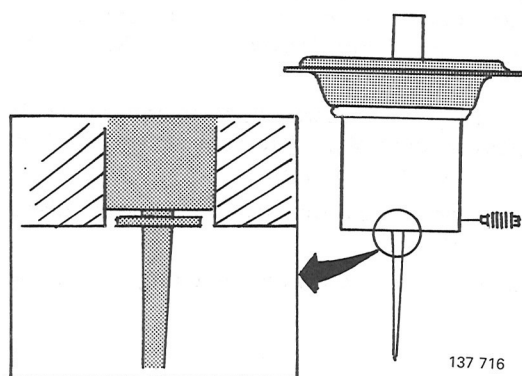
Jet height:

1975–1977 .....	2.7 mm (0.106 in)
1978–1979 .....	2.5±0.2 mm (0.099±0.008 in)
1980–1984 .....	3.0±0.2 mm (0.118±0.008 in)

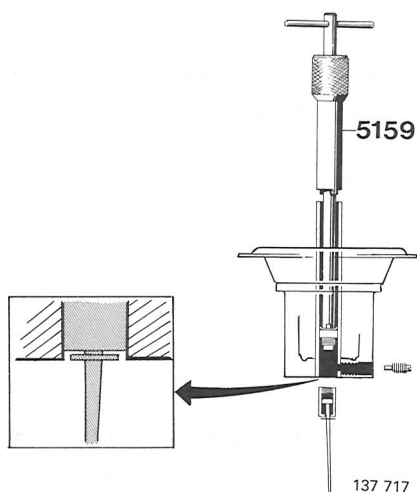
C49



137 715



137 716



137 717

**Check cap and suction piston + diaphragm**

Check:

- that cap is not cracked after using press tool 2897.
- damper cylinder fit in cap
- that lower edge of damper cylinder is flush with bottom of suction piston.  
Adjust by tapping damper cylinder.
- diaphragm. Replace if worn, "swollen", etc.

1975–1977

C50

**Check metering needle**

Check position of needle, state of wear, etc.

Washer should be flush with underside of suction piston.

Adjust position of needle (replace if necessary) by unscrewing retaining screw on side of piston.

Flat side of piston should face retaining screw.

1978–1984

C51

**Check adjustment screw and metering needle**

Check function of screw using tool 5159.

**Note:** Canada 1982–: remove seal prior to check, see page 45 (C17).

Check metering needle for damage, wear, etc.

Check position of metering needle.

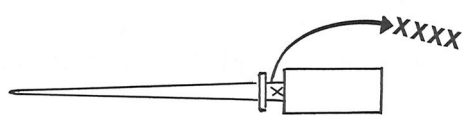
Washer should lie flush with underside of piston.

Use tool 5159 to adjust (replace if necessary) needle.

If replacement is necessary, screw must be removed.

Groove in piston should face screw.

If damper oil consumption is too high, replace adjustment screw O-ring, see C52–55.



137 718

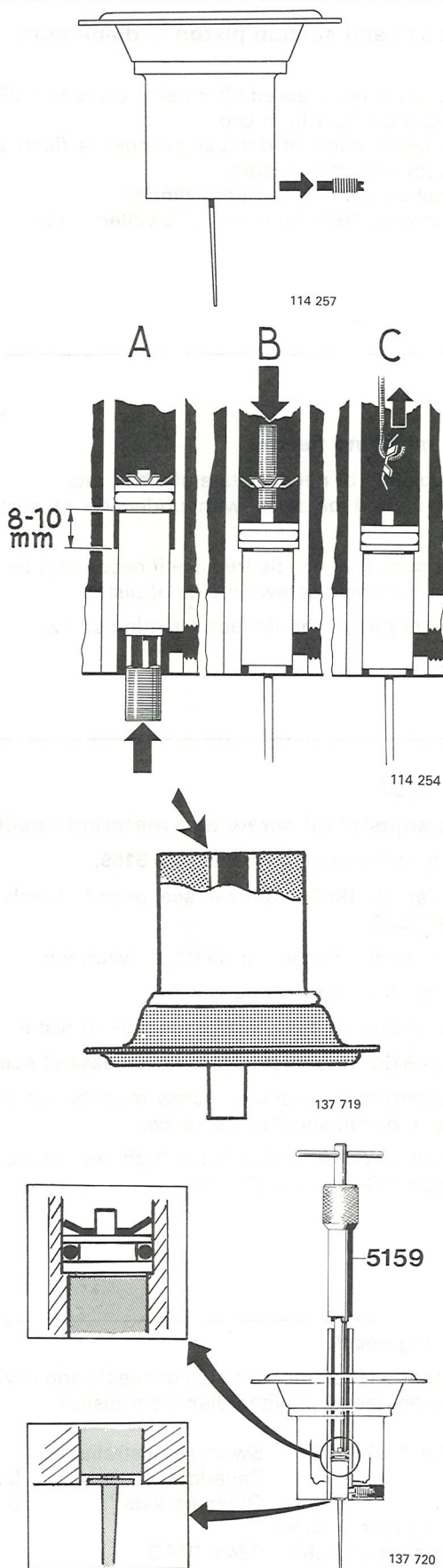
<b>B 17/19 A</b>	1977–1980 .....	B1EE
	1981–1984 .....	B1FE
<b>B 20 A</b>	.....	B1CC
<b>B 21 A</b>	1975 .....	B1ED <sup>1)</sup>
	1976–1980 .....	B1EE

**Metering needle**

Designation is stamped in side of needle and is visible when needle is withdrawn from piston.

<b>B 21 A</b>	1981–1984	Sweden, Australia	
		Canada .....	B1FD
		Other markets <sup>2)</sup> .....	B1EE

<sup>1)</sup> Early type = B2BB<sup>2)</sup> Switzerland 1983–1984 = B1FD



## 1978–1984 Replacing metering needle adjustment screw

C52

Remove retaining screw

C53

Remove adjustment screw

Push up metering needle and adjustment screw approx. 8–10 mm in damper cylinder. Use for instance a tube (ext. diam. = max. 7 mm, int. diam. = min. 3 mm, length = approx. 100 mm).

Then press adjustment screw down to bottom position. Upper lock washer should remain at the top. Use a punch (max. diam. = 3 mm).

Turn lock washer on side and withdraw it with a piece of bent steel wire.

Push up adjustment screw and metering needle using punch.

C54

Check suction piston and damper cylinder

Clean piston and cylinder.

Check that lower edge of damper cylinder is flush with underside of piston.

Adjust by tapping damper cylinder.

C55

Install adjustment screw and metering needle

Check that metering needle is undamaged.

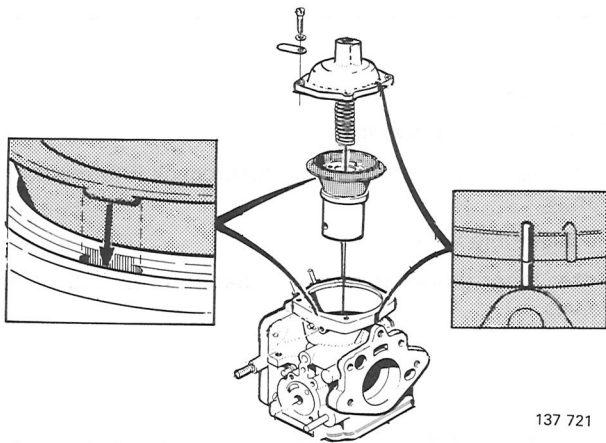
Install **new** O-ring on adjustment screw. Oil O-ring.

Depress screw into damper cylinder until it bottoms. Use special tool **5159**.

Install new tab washer using **5159**. See inset for position of washer.

Install metering needle and adjustment screw.

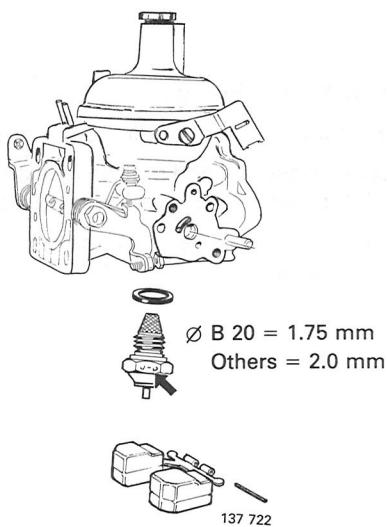
Adjust position of needle using tool **5159**.

**Install:**

- suction piston. Make sure that locating lug on diaphragm fits in carburettor body
- return spring
- cap. Note position of cast assembly marks on cap and carburettor body.

Check for smooth operation of piston.

C56

**Check needle valve and float**

Check valve strainer and sealing.

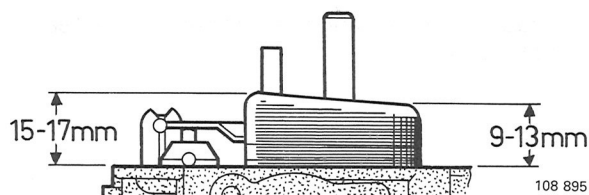
Check float for punctures. If necessary place float in water and check for air bubbles.

C57

C58

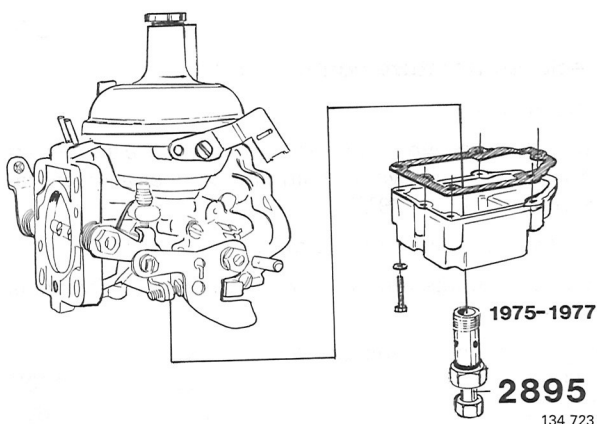
**Install:**

- needle valve and seal
- floats and hinge bar.

**Check/adjust float level**

Invert carburettor and adjust level by bending tongue at needle valve.

C59

**Install float chamber cover and gasket**

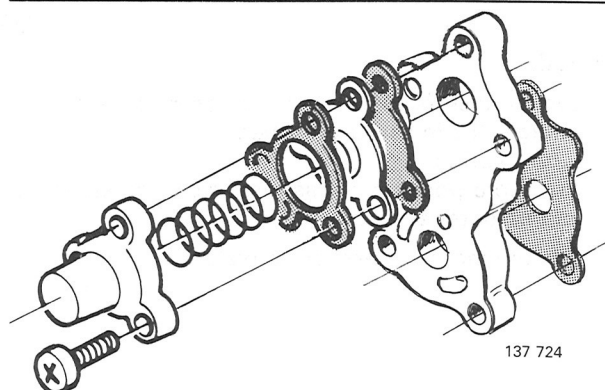
C60

1975–1977

**Install special tool 2895**

(2895 is required at later stage when setting carburettor.)

C61



1980–1984

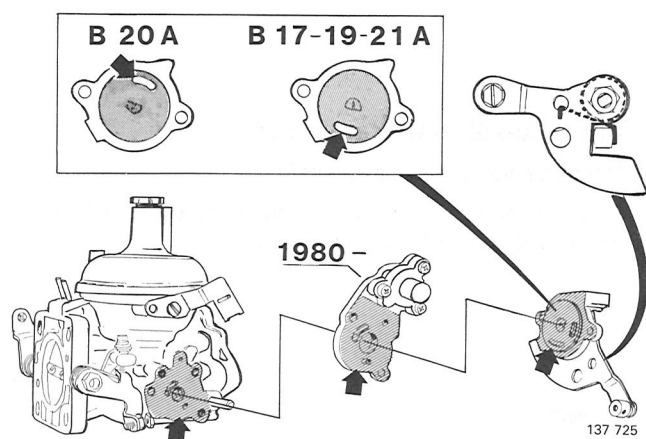
C62

**Check vacuum valve**

Check for wear, damage, etc. Also check intermediate flange.

Re-assemble valve.

**Note:** Inner gasket is glued to diaphragm on late type valves.



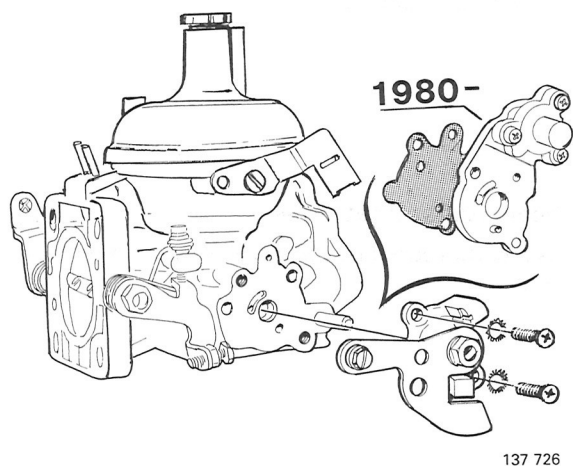
C63

**Check choke linkage**

Check for smooth operation of linkage.

Check disc section and mating face on carburettor body and intermediate flange (1980–1984).

Minor scoring can be removed with emery cloth and grinding paste.



C64

**Install:**

- vacuum valve + flange and gasket (1980–1984)
- choke linkage.

C65

**Check temperature compensator**

Depress valve A.

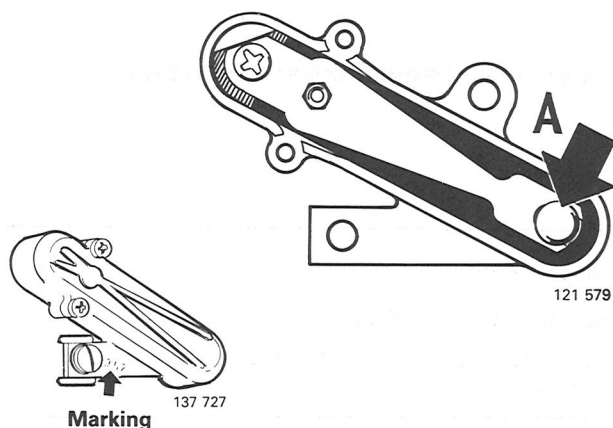
Valve should move under very light pressure and revert to original position without binding (applies at temperature above 26°C = 79°F).

Adjust valve if operation is stiff.

Replace complete temperature compensator if valve is scored or lined.

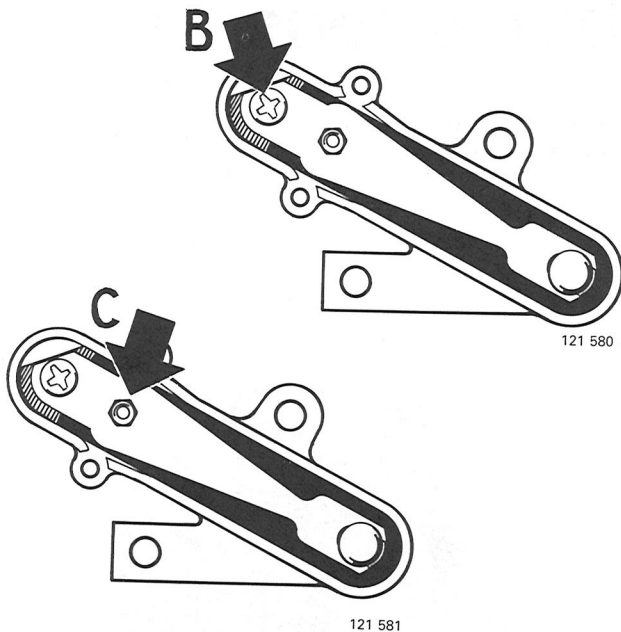
Temperature compensator designation:

B 20 A .....	120K
Other models .....	60L





C66

**Adjusting temperature compensator****To centralize:**

Unscrew B, adjust and re-tighten.

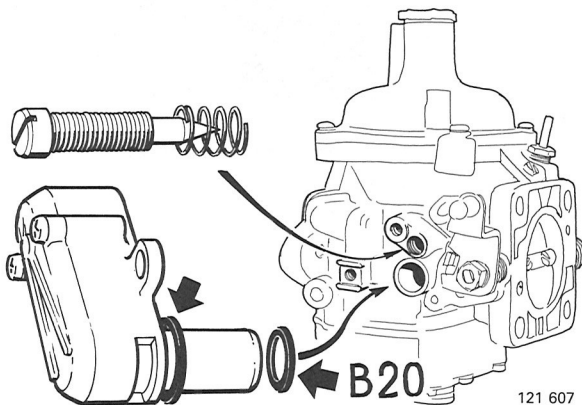
Valve should move under very light pressure and revert to original position without binding.

**Opening temperature:**

Valve starts to open (i.e. lift from seat) at 20°C (68°F).

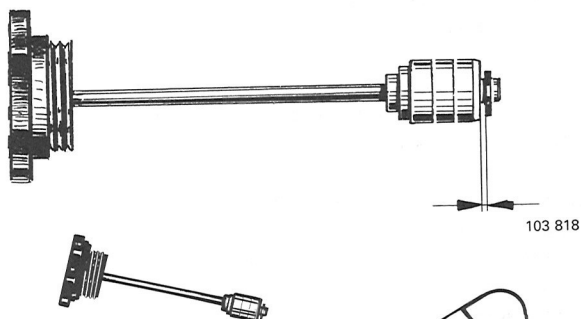
Adjust by turning screw/nut C.

C67

**Install:**

- temperature compensator
- **B20**: 2 seals
- volume screw. Screw in until **bottoms**.

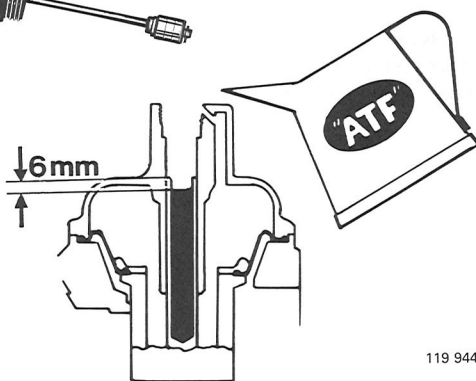
C68

**Check damper piston**

Check for damage, wear, etc. Check axial clearance.  
Clearance = **1.0–1.8 mm** (0.04–0.07 in).

Replace damper if damaged.

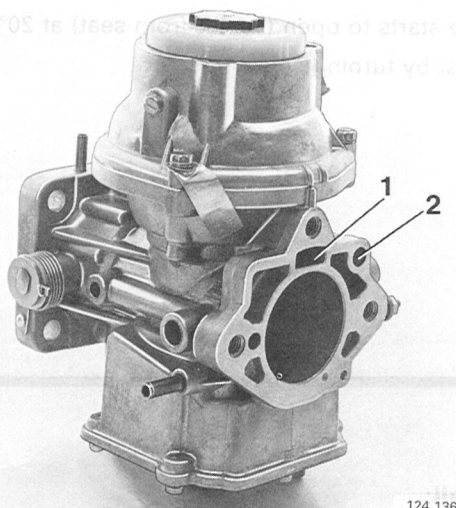
C69

**Fill ATF****Install damper piston**

Installing carburettor .....	page 50
Setting carburettor .....	page 41

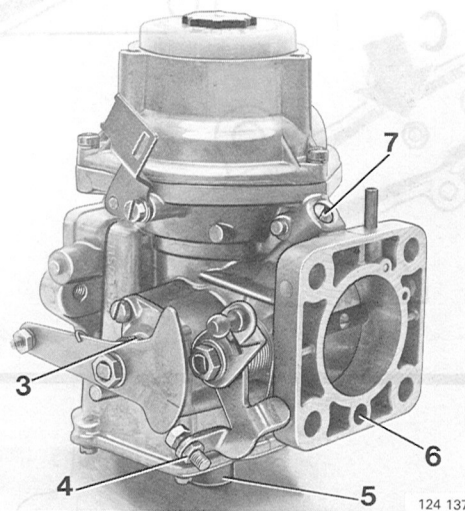
## D. Pierburg (DVG) 175 CDUS

Type of carburettor fitted to B21 A engines shown below.  
B23 A model has a built-in damper oil reservoir.



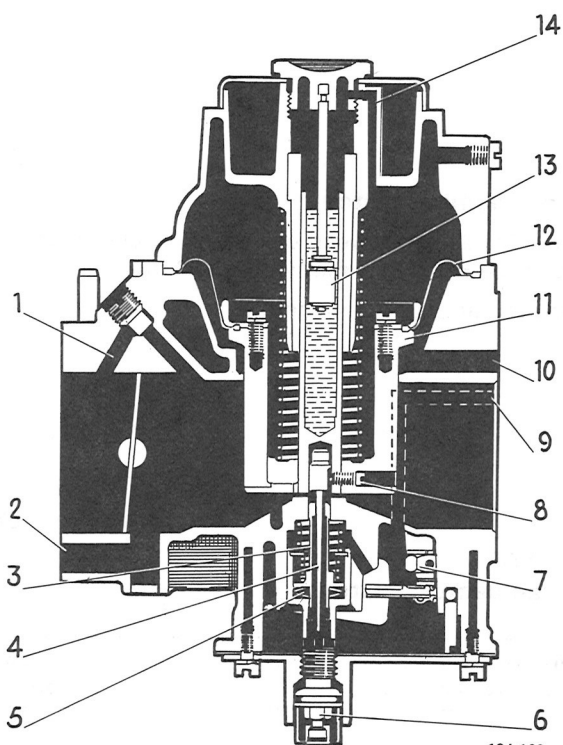
124 136

- 1 Channel to chamber beneath suction piston
- 2 Float chamber vent hole



124 137

- 3 Choke linkage  
1980–1984: also incorporates vacuum valve
- 4 Fast idle adjustment screw
- 5 CO adjustment screw
- 6 Idling channel
- 7 Solenoid valve terminal



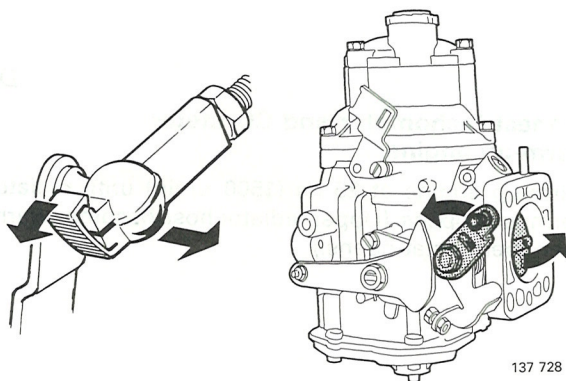
124 163

- 1 Solenoid valve channel
- 2 Idling channel
- 3 Fuel jet
- 4 Metering needle
- 5 Bimetal washers (temperature compensators)
- 6 CO adjustment screw
- 7 Needle valve
- 8 Metering needle retaining screw
- 9 Float chamber vent hole
- 10 Channel to chamber beneath suction piston
- 11 Suction piston
- 12 Diaphragm
- 13 Damper piston
- 14 Damper piston vent channel

## Carburettor, tuning and adjustment

Operations D 1–15

Refer also to general instructions on page 12.



D1

### Disconnect link rod from carburettor

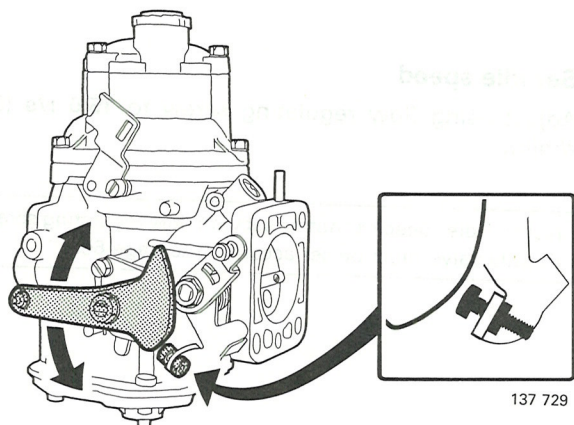
Release lock tab on ball socket and lever off link rod.

D2

### Check throttle valve and spindle

Check for smooth operation of valve and spindle.

If spindle is loose, carburettor should be reconditioned.

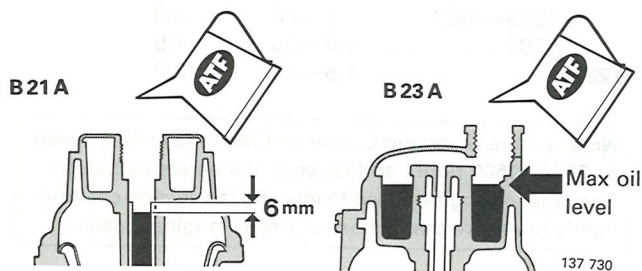


D3

### Check choke linkage

Check for full movement of lever when choke is withdrawn.

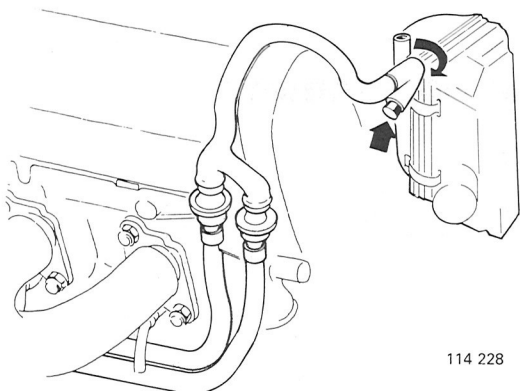
Depress choke. Check that lever contacts lower stop position and that fast idle adjustment screw does not contact lever. Adjust if necessary.



D4

### Check damper oil level

If necessary top up with ATF



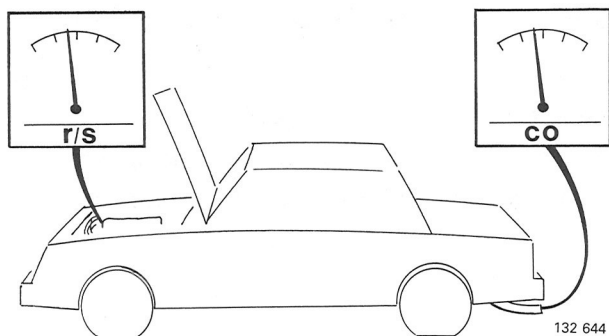
114 228

D5

**Disconnect air pump/Pulsair system as applicable**

(Carburettor setting will be incorrect if air pump/Pulsair system is not disconnected).

Disconnect hose. Plug end of hose or crimp with pliers 2901.

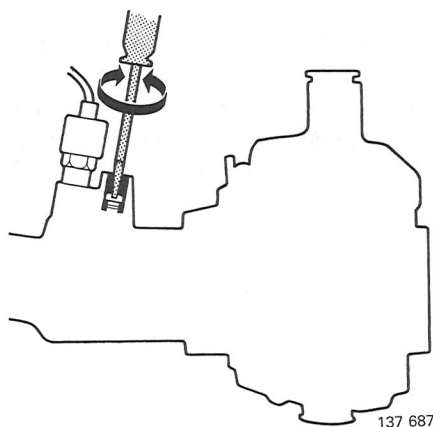


132 644

D6

**Connect tachometer and CO meter**  
**Warm-up engine**

Warm-up engine at 25 r/s (1500 r/min) until radiator thermostat opens. (Upper radiator hose becomes warm when thermostat opens.)



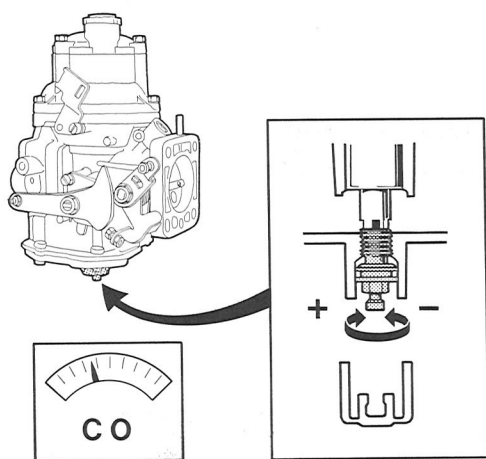
137 687

D7

**Set idle speed**

Adjust using flow regulating screw to **15.0 r/s** (900 r/min).

**Note:** If idle speed cannot be set with flow regulating screw throttle valve must be set according to page 65.



137 731

D8

**Check/adjust CO content**

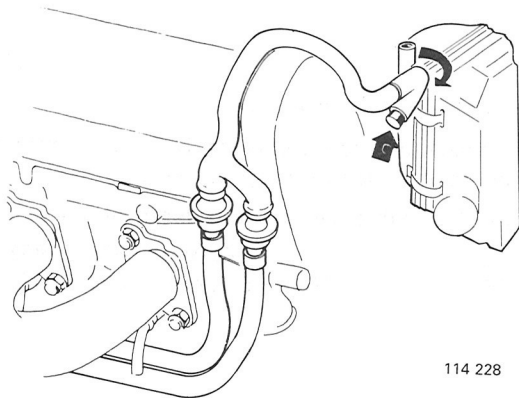
CO content %	Checking	Setting
<b>B 21 A</b> 1978 .....	2.0–3.5	2.5
1979–1983 ...	1.5–3.0	2.0
1984 .....	1.0–2.5	1.5
<b>B 23 A</b> .....	1.5–3.0	2.0

**Note:** Before recording CO content increase engine speed to 25 r/s (1500 r/min) so that cold fuel enters carburettor. Then reduce engine speed to idle and tap suction chamber lightly to ensure that piston returns to original position.

Adjust CO with screw on underside of float chamber.

Screw is plugged. To remove, pry out plug with a screwdriver. Re-fit plug after adjusting CO.

- Turning screw **clockwise reduces CO**
- Turning screw **anti-clockwise increases CO**



114 228

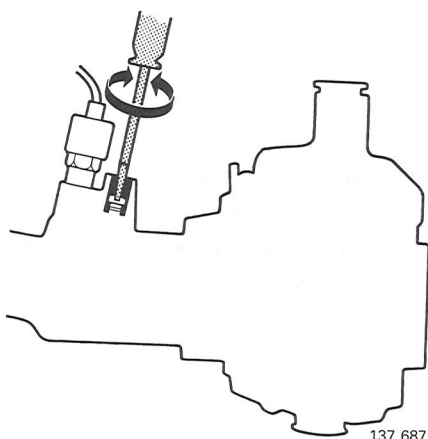
D9

### Reconnect hose to air pump/Pulsair system

CO should drop when hose is connected to show that system functions.

#### IMPORTANT

Do not readjust CO when hose is connected.

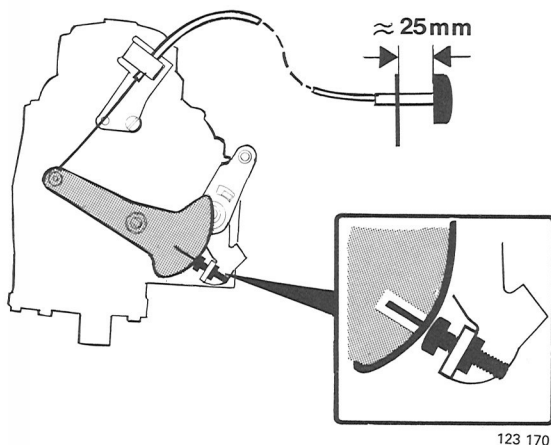


137 687

D10

### Check/adjust idle speed

Adjust idle speed with flow regulating screw to **15.0 r/s** (900 r/min).



123 170

D11

### Adjust fast idle

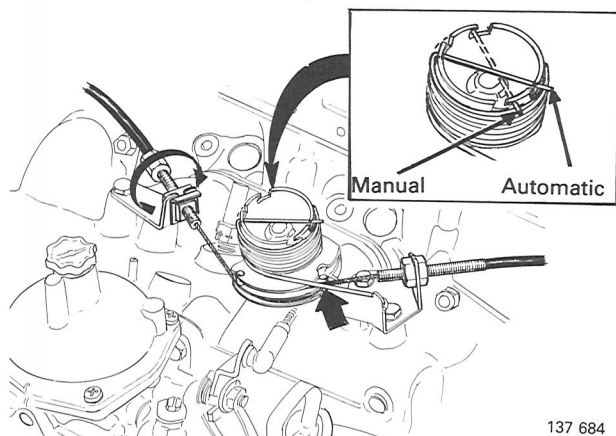
Withdraw choke 25 mm = 1 in so that mark on choke linkage is opposite fast idle adjustment screw.

Adjust engine speed with fast idle adjustment screw to **20.8–22.5 r/s** (1250–1350 r/min).

Push choke in again

D12

### Turn off engine Remove meters



137 684

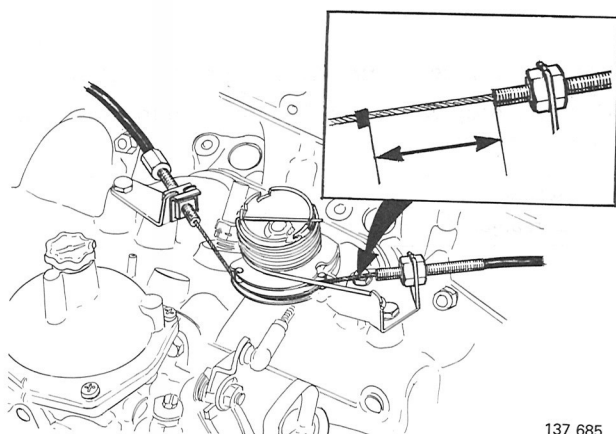
D13

### Adjust throttle cable

When released, throttle pulley should contact stop and cable should be taut.

When fully open, pulley should contact other stop.

Length of pulley spring may differ for manual and automatic-gearbox versions.



137 685

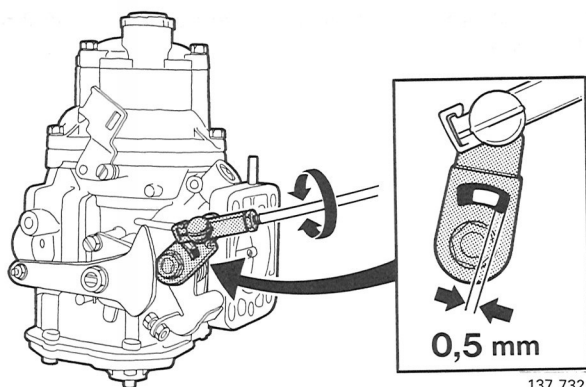
D14

**Adjust kick-down cable** (auto trans)

Depress accelerator to floor. **Note:** Do not turn throttle pulley by hand or setting may be false.

At full throttle, cable sleeve—clip dimension =:

BW 35 ..... **43–47 mm** (1.694–1.852 in)  
BW/AW 55, AW 71 .... **50.4–52.6 mm** (1.986–2.072 in)



137 732

D15

**Reconnect/adjust link rod**

Press on link rod and engage clip.

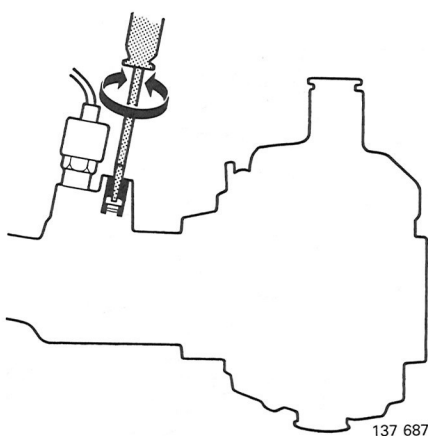
Adjust link rod to obtain a clearance of **0.5 mm** (0.020 in) between lever and spindle flange.



## Setting throttle valve

Operations D 16–21

- Method below should only be used in response to complaints about dieselling (run-ning-on) or if difficulties are encountered in setting idle speed/CO in usual manner.
- If carburettor is removed from vehicle, see page 69 (D29).



**Turn on ignition**  
**Warm-up engine**

D16

**Check/adjust CO**

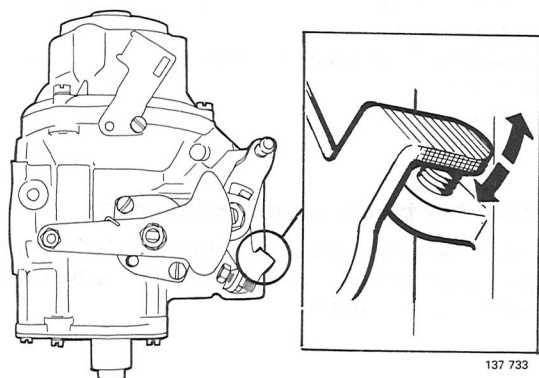
D17

If CO cannot be set to specification throttle valve must be reset and CO adjusted until correct.

D18

**Set idle adjustment screw**

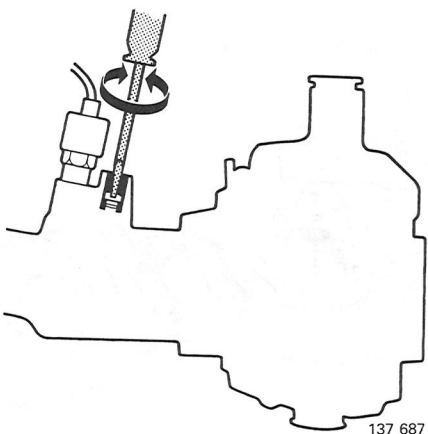
Unscrew screw **4 turns** from bottom position.



**Set throttle valve**

Set engine speed to **18.3–20.0 r/s** (1100–1200 r/min) by bending tab.

D19



**Adjust idle speed**

Adjust with idle adjustment screw to **15.0 r/s** (900 r/m).

D20

**Set carburettor**

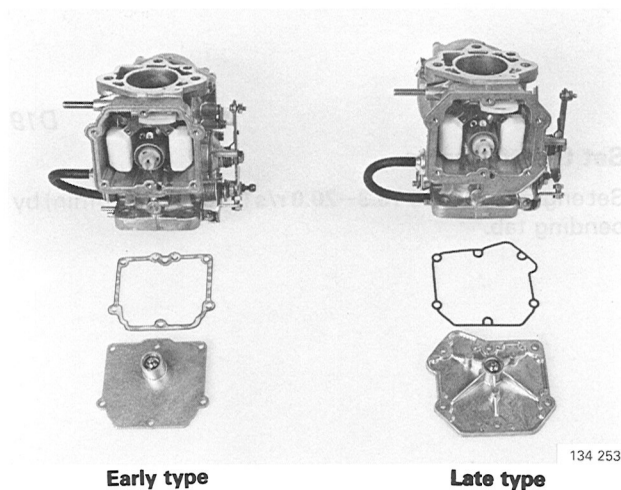
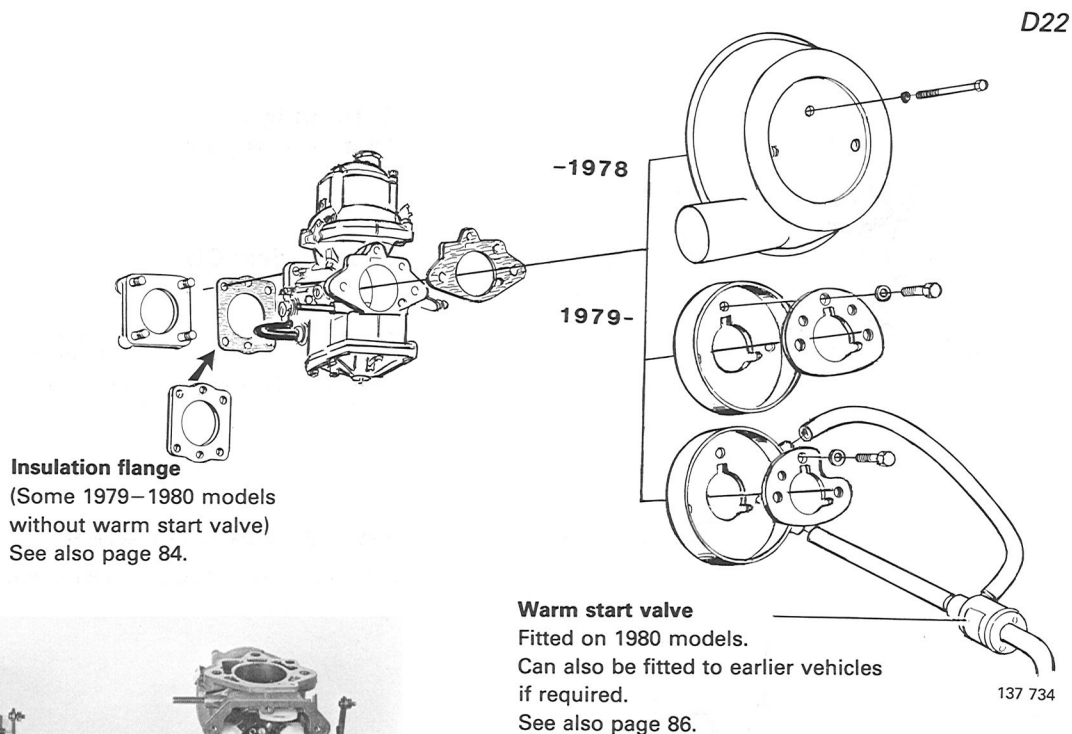
See page 61.

D21

## Carburettor, removing/installing

### Operations D 22–23

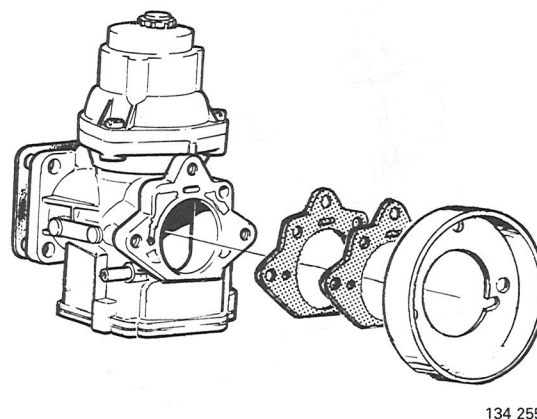
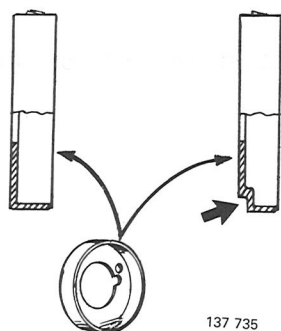
- Always cover opening in intake manifold after removing carburettor.
- Use new gaskets when installing carburettor.
- After installation, set carburettor according to method on page 61.



**D23**

**Float chamber type and connection plate**

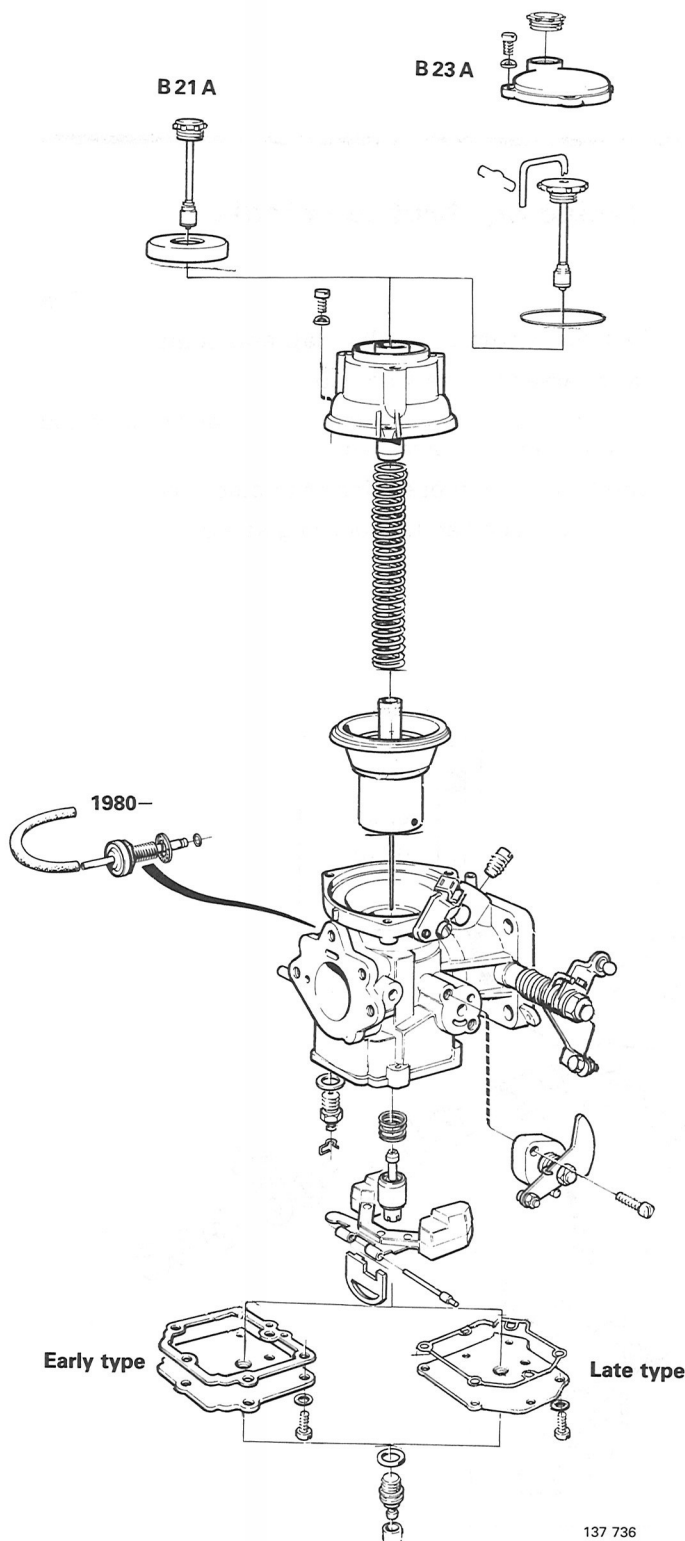
If early type connection plate is used in conjunction with late type float chamber, two gaskets should be used when re-fitting carburettor.



# Carburettor, reconditioning

Operations D24–43

Use new gaskets and seals when reinstalling carburettor.



D24

**Clean carburettor outer**  
**Disassemble carburettor**

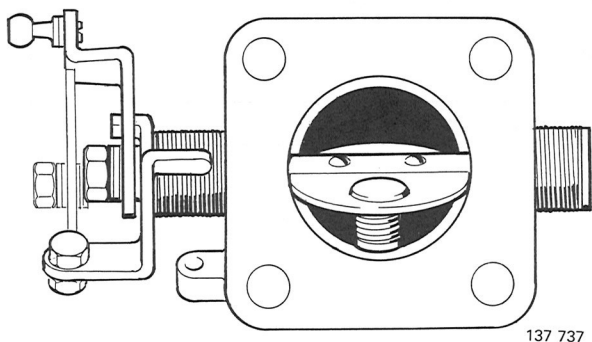
D25

**Clean and blow dry all parts and channels**  
**IMPORTANT.** Diaphragm may only be cleaned with paraffin.

D26

**Check flange facing intake manifold**  
Grind if necessary.

D27



137 737

**Check throttle valve and spindle**

Check for smooth operation etc.

Also check throttle valve relief valve (some models only).

**Replacing throttle spindle**

D28

Throttle spindle bushings are not replaceable. Wear is however minimal as they are made of steel. If spindle assembly needs reconditioning, it is usually sufficient to replace spindle, valve and seals.

**Replace throttle spindle, flap and seals****Note:** Assembly mark on flap.

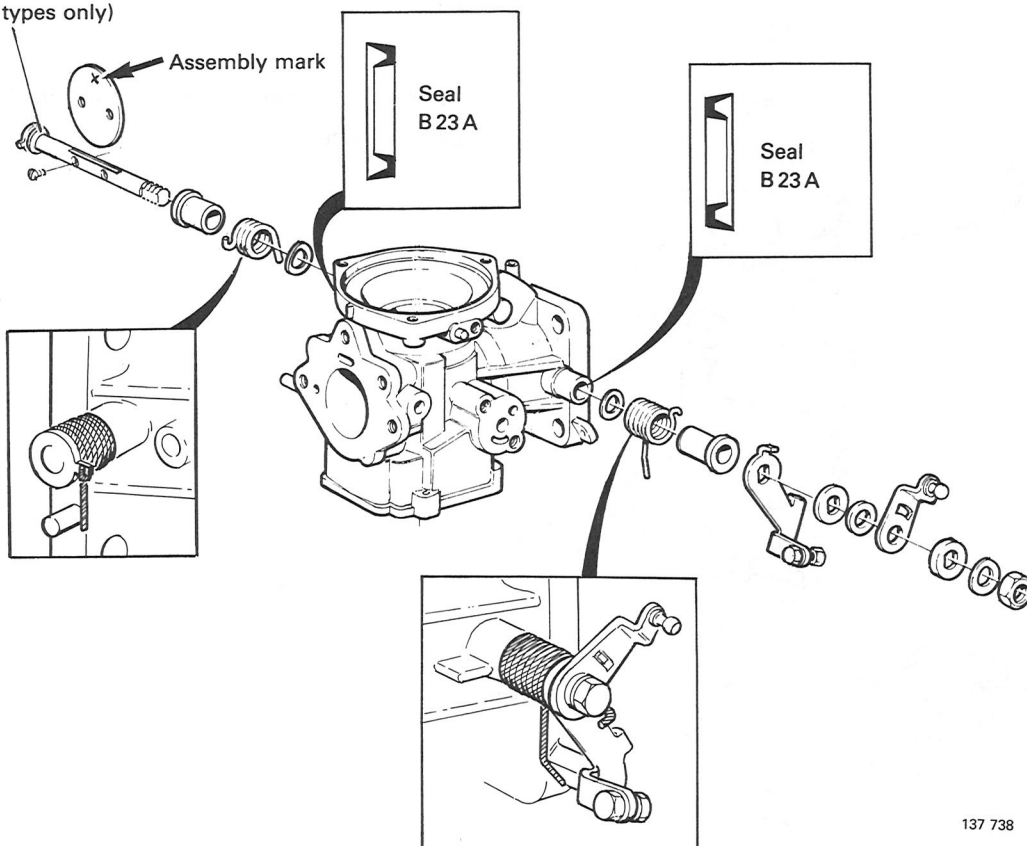
Do not tighten retaining screws until all linkages and return springs are attached.

Check for smooth operation of throttle valve.

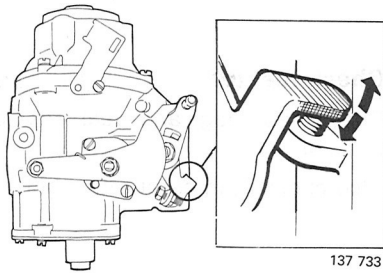
Secure threaded end of retaining screws.

Plastic washer  
(late types only)

Assembly mark

Seal  
B 23 ASeal  
B 23 A

137 738



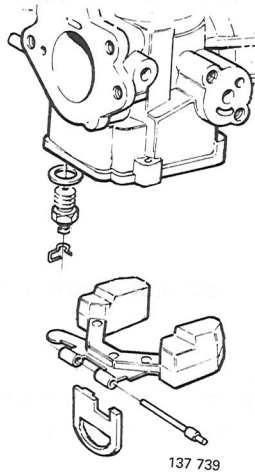
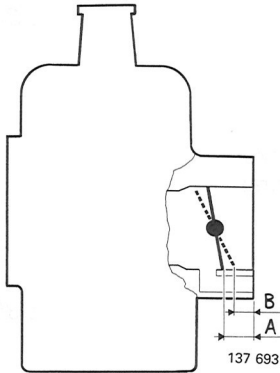
D29

#### Basic-set throttle

Bend lever so that throttle is fully closed.

Measure A.

Bend tab to obtain opening (A-B) of **0.7–0.9 mm** (0.028–0.035 in).



D30

#### Check needle valve and floats

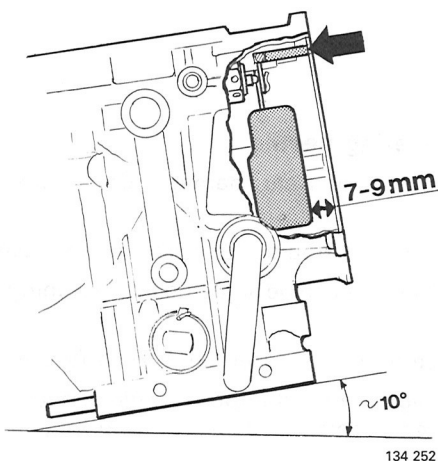
Check sealing of needle valve.

Check float for punctures. If necessary place float in water and check for air bubbles.

D31

#### Install:

- needle valve and seal
- floats + hinge bar and plastic bracket. Make sure that floats hook onto spring on needle valve.



D32

#### Check/adjust float level

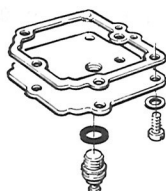
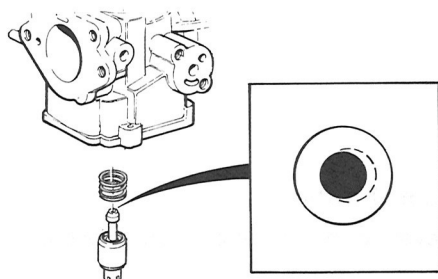
Place carburettor on exhaust branch pipe.

Depress plastic bracket so that float takes up usual position.

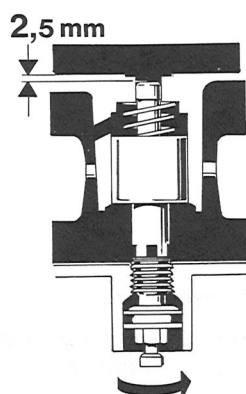
Tilt carburettor about 10° until floats just move needle valve ball. **Note** that ball must not be pressed into needle valve.

Measure level of float above gasket face.

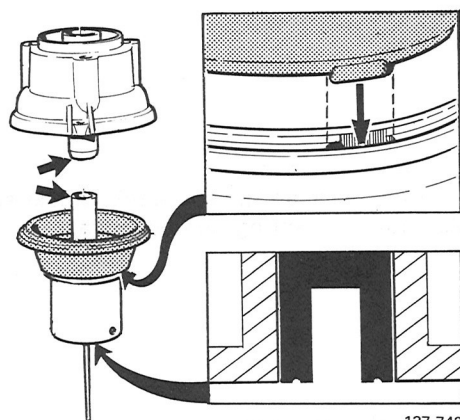
Adjust by bending steel tongue next to needle valve.



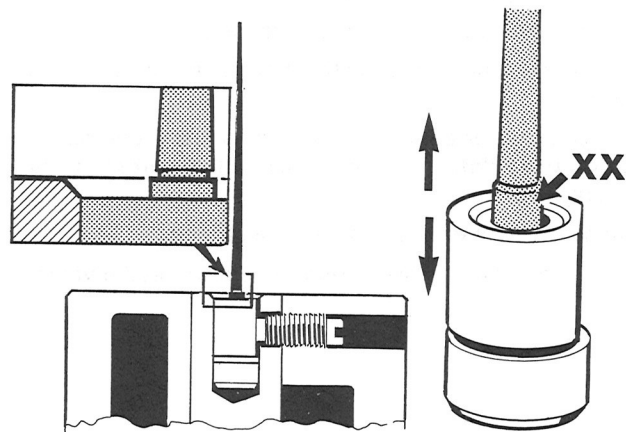
137 740



137 741



137 742



137 743

D33

**Check fuel jet**

Check for damage and wear, etc. Centre hole should not be oval.

Also check fit in carburettor body.

D34

**Install:**

- return spring
- fuel jet
- float chamber cap and gasket
- adjustment screw and O-ring.

D35

**Basic-set fuel jet**

Adjust position of jet with adjustment screw on underside of float chamber.

Jet should be **2.5 mm** (0.098 in) beneath carburettor bridge.

D36

**Check suction piston and diaphragm**

Check:

- damper cylinder fit in cap
- that lower edge of damper cylinder is flush with underside of piston. Adjust by tapping damper cylinder
- diaphragm. Replace if worn, "swollen" or damaged.

D37

**Check metering needle**

Check for signs of wear, damage. Check position of needle.

Groove in needle should face according to illustration.

Position of needle can be adjusted by slackening retaining screw.

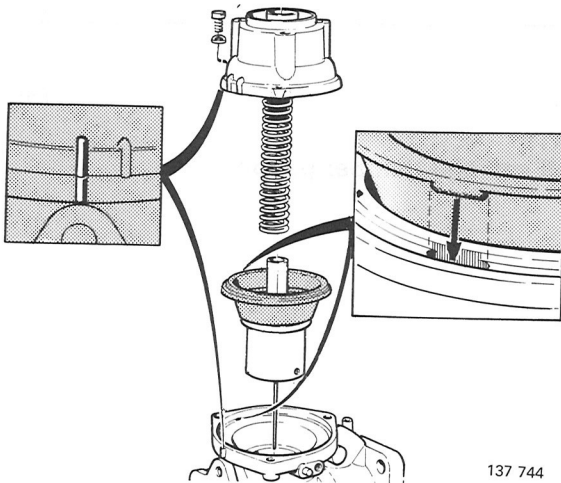
Flat surface of needle assembly should face screw.

Needle designation is stamped on side of needle and is visible when needle is withdrawn from retainer.

**B21 A** ..... PN  
**B23 A** ..... DC



D38



137 744

**Install:**

- suction piston. Make sure that locating lug on diaphragm fits into carburettor body
- return spring
- cap. Note position of cast assembly marks on cap and carburettor body.

Check for smooth operation of piston.

D39

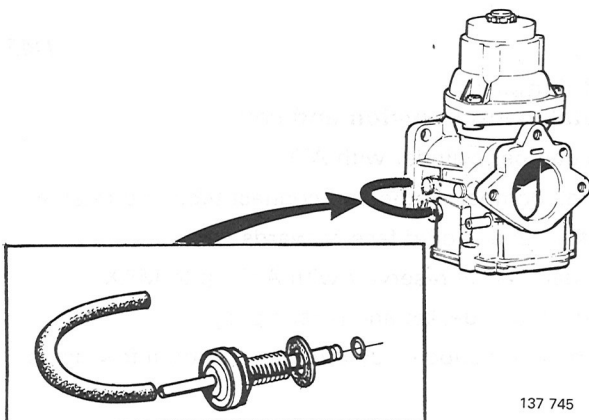
1980–1984

**Check and connect vacuum valve + hose**

Opening/closing action of valve can be checked by sucking end of hose.

Check that hose is not damaged, hard, kinked, etc.

Install valve and hose.



137 745

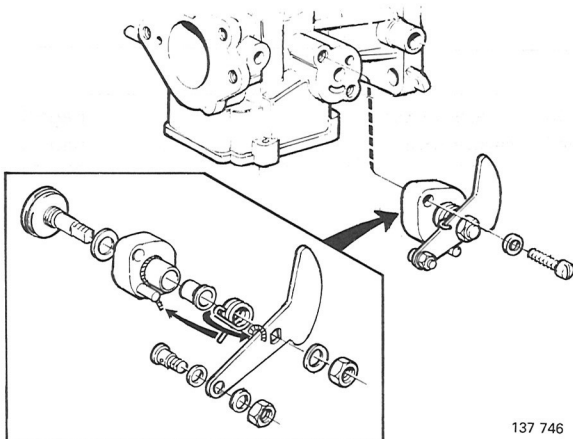
D40

**Check choke linkage**

Check for smooth operation of linkage.

Check disc section and mating face on carburettor body.

Minor scoring can be removed with emery cloth and grinding paste.



137 746

D41

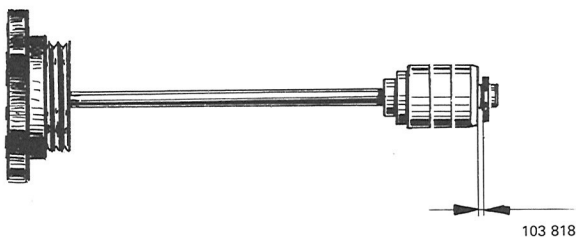
**Check damper piston**

Check for damage, wear, etc.

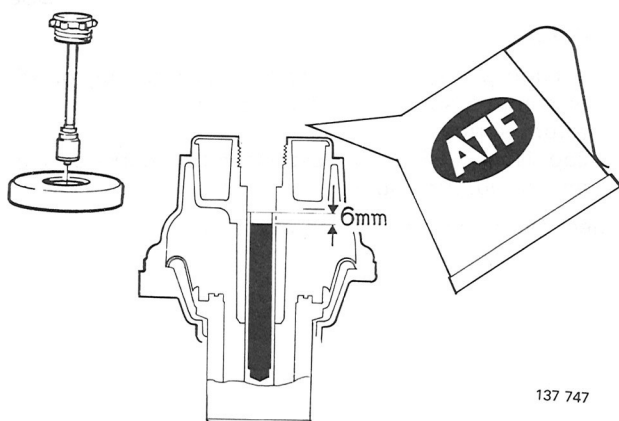
Check axial clearance. Clearance = **0.5–1.5 mm** (0.02–0.06 in).

Replace damper if damaged.

**B23A:** check that vent hole in cap is not blocked.



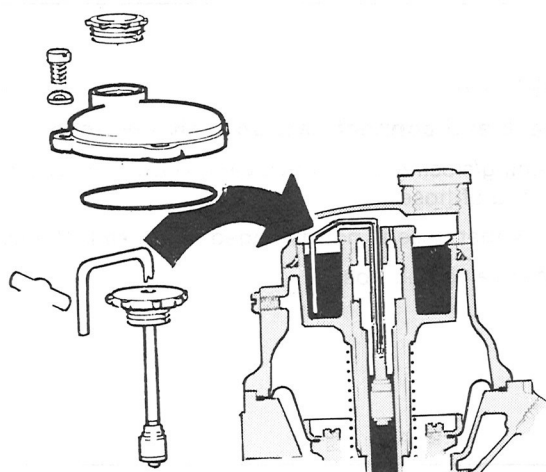
103 818



**B21A**  
**Fill ATF**  
**Install cap and damper piston**

**D42**

137 747



**B23A**  
**Fill damper oil**  
**Install damper piston and cap**

**D43**

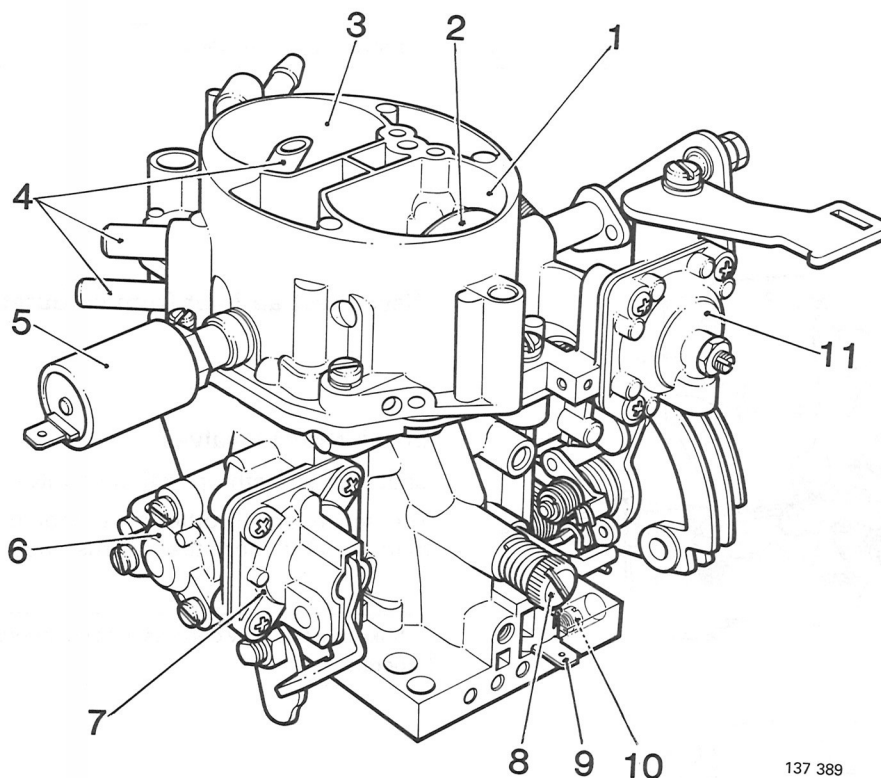
Fill damper cylinder with ATF.  
Install damper piston and connect tube and retainer.  
**Note:** Tube should face forwards.  
Fill damper oil reservoir with ATF up to MAX.  
Re-fit cap + gasket and plastic plug.  
Remove air bubbles by pumping piston a few times.

137 748

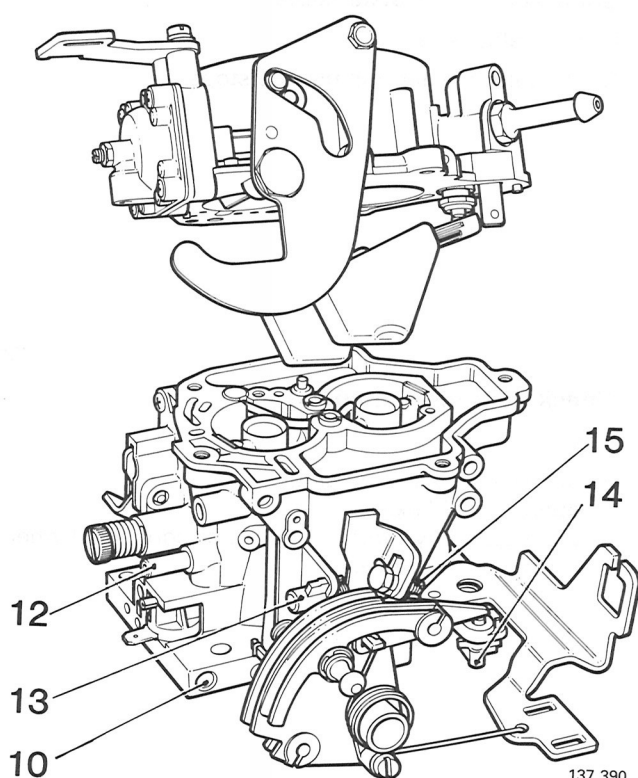
Installing carburettor .....	page 66
Setting carburettor .....	page 61

## E. Solex-Cisac carburettor

Carburettor fitted to B 19 K 1984 model shown below.



137 389



137 390

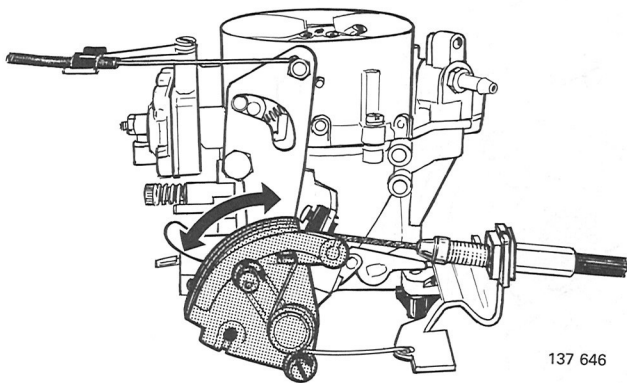
- 1 Primary barrel
- 2 Choke flap
- 3 Secondary barrel
- 4 Float chamber ventilation connections
- 5 Solenoid valve (idle jet)
- 6 Enrichment device (part throttle)
- 7 Acceleration pump
- 8 Idling screw (air volume)
- 9 Thermistor (electric heating of idling channels)
- 10 CO adjustment screw (plugged)
- 11 Vacuum operated choke control
- 12 Vacuum connection to distributor
- 13 Adjustment screw, primary throttle valve
- 14 Adjustment screw, secondary throttle valve
- 15 Adjustment screw fast idle

Adjustment screws 13 and 14 are pre-set on a flow bench at the factory and must not be adjusted.

## Carburettor, tuning and adjusting

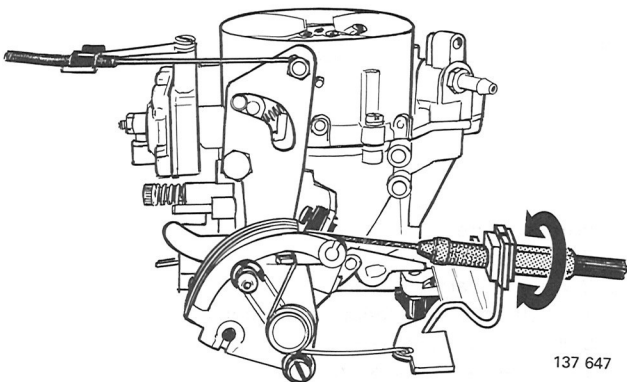
Operations E 1–10

See also section on general instructions on page 12.



**Disconnect air inlet from carburettor**

E1



**Check throttle valves**

Check for smooth operation of valve.

The secondary throttle valve should open when primary valve is more than 2/3rds open.

Choke must be fully depressed to enable secondary valve to operate.

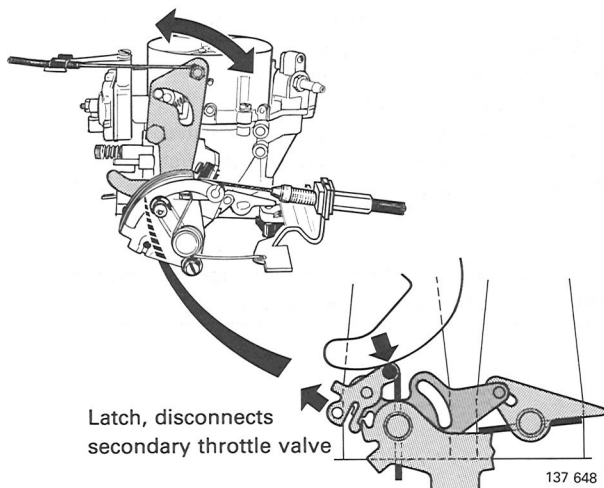
E2

E3

**Check/adjust throttle cable**

Ensure cable is taut.

Check both idle and full throttle stops.



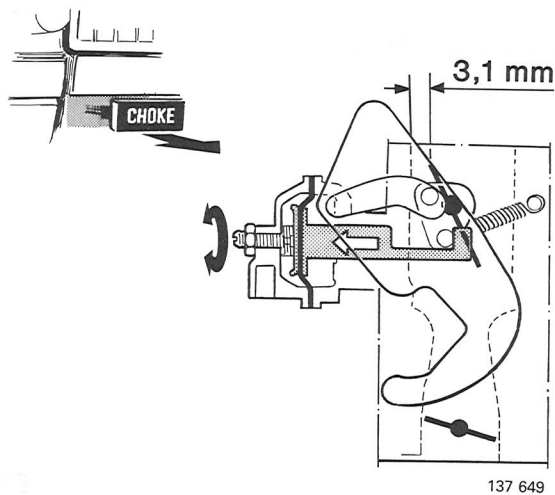
Latch, disconnects secondary throttle valve

**Check operation of choke**

Check:

- for slackness and binding
- operation of linkage
- that secondary throttle valve is disconnected when choke is withdrawn.

E4



E5

**Check/adjust vacuum-operated choke control**

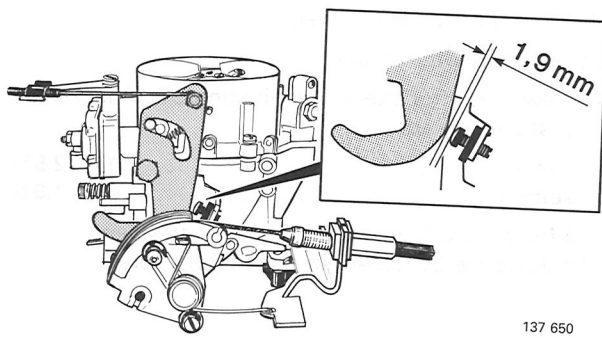
Pull choke out fully to close flap.

Push vacuum unit pull rod straight in until it bottoms.

If rod is pushed in at an angle false results will be obtained.

Gap between carburettor and flap should be **3.1 mm** (0.122 in). Check using a 3.0 mm drill and a 3.5 mm drill.

Adjust gap by turning screw on vacuum unit.



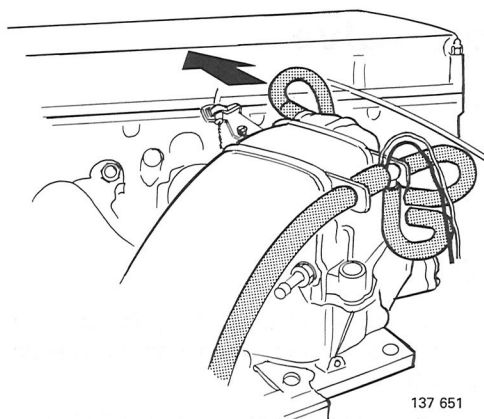
E6

**Check/adjust fast idle**

Depress choke fully.

Separation between cam and disc and fast idle adjustment screw should be **1.9 mm** (0.075 in).

Check with a feeler gauge and adjust if necessary using fast idle adjustment screw.



E7

**Reconnect inlet hose to carburettor****IMPORTANT**

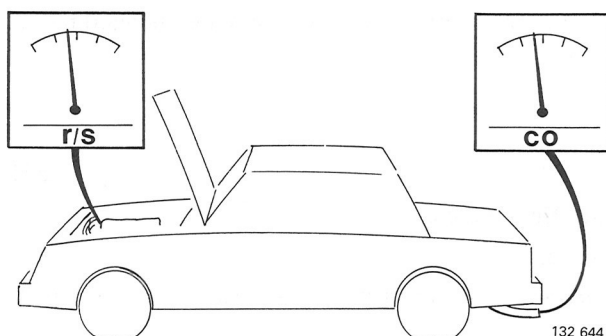
- Hose connection for crankcase ventilation system must point directly towards engine or performance will be affected.
- When checking/adjusting idle and CO, the inlet hose and hoses for warm start valve must be connected otherwise false results will be obtained.  
See also K5 on page 88.

E8

**Connect tachometer and CO meter**  
**Warm-up engine**

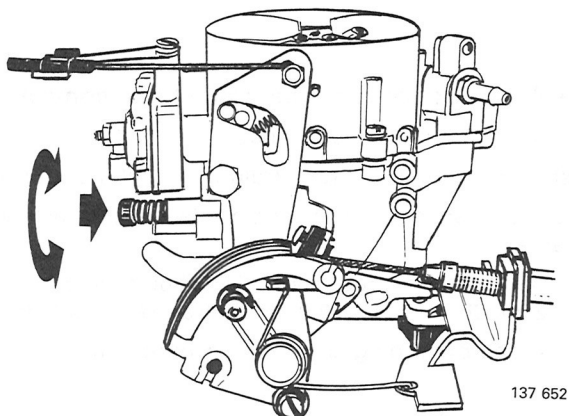
Warm-up engine at 25 r/s (1500 r/min) until radiator thermostat opens.

(This can be checked by placing hand on upper radiator hose.)

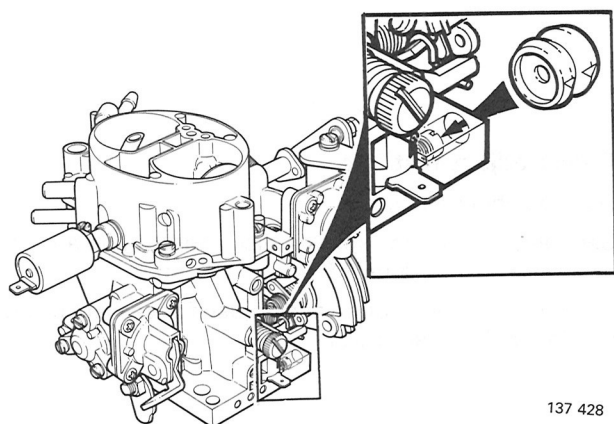


## Solenoid valve, idling jet

E9

**Check/adjust idle speed**

15.0 r/s (900 r/min).



E10

**Check/adjust CO content**

Adjustment screw is plugged.

Remove plug with an awl.

Fit a **new** plug after checking/adjusting CO. If necessary readjust idle speed.

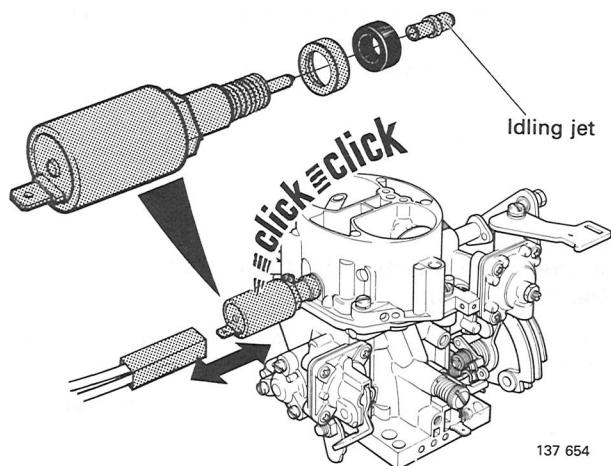
CO, checking .....	1.0–2.5%
setting .....	1.5%

- To **increase** CO **unscrew** adjustment screw.
- To **decrease** CO **screw in** adjustment screw.

## Idling jet solenoid valve

Operations E 11–12

E11

**General**

Solenoid valve opens/closes idling jet. It is wired to ignition in such a way that when ignition is switched off fuel supply to carburettor is cut off.

- If solenoid does not open engine will stall.
- If solenoid does not close engine may diesel (run-on).

**IMPORTANT:** Solenoid should only be installed hand-tight.

E12

**Function check**

Turn on ignition.

Disconnect—reconnect plug. A click should be heard.



## E. Thermistor (electric heating of idling channels)

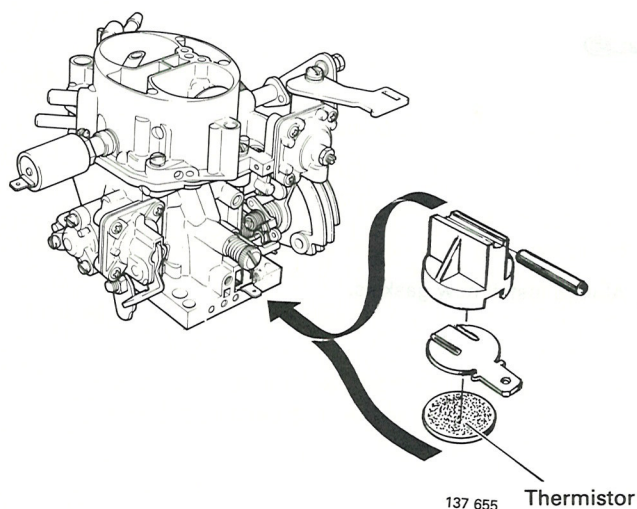
Operations E 13–14

E13

### General

Idling channels of carburettor are kept warm by a thermistor heating element to prevent icing in cold weather.

Thermistor is wired to ignition and is energized when ignition is switched on.



E14

### Function check

Check for current at thermistor when ignition is switched on. Connect an ammeter between connector and thermistor. Withdraw connector carefully otherwise complete heating element will be removed as well.

Check current consumption. At a temperature of about 20°C (68°F) this should be approx. 1A. As thermistor heats up current consumption drops.

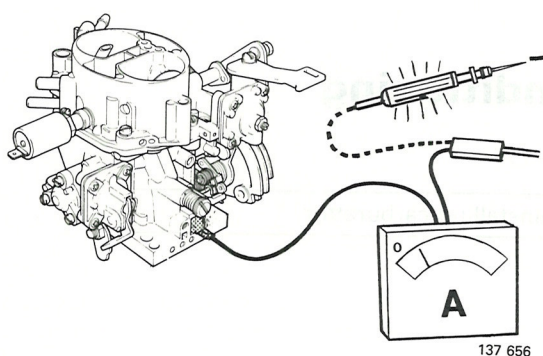
### If current consumption = 0A:

Withdraw tubular pin and plastic retainer, placing hand beneath carburettor to prevent thermistor from falling onto floor.

Clean all contact faces, including those inside carburettor.

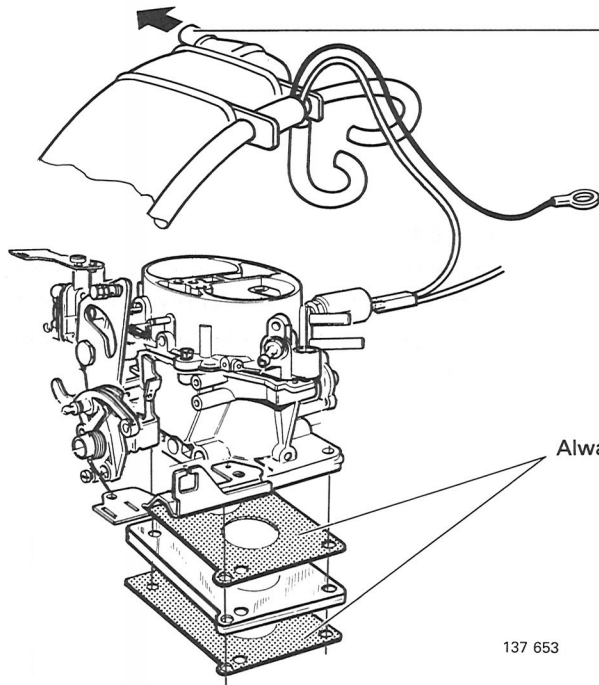
Refit all parts.

Repeat function check.



## Carburettor, removing/installing

E15



Crankcase ventilation connection.

Should face engine or performance will be affected.  
Warm start valve hoses K5 on page 88.

Always install new gaskets.

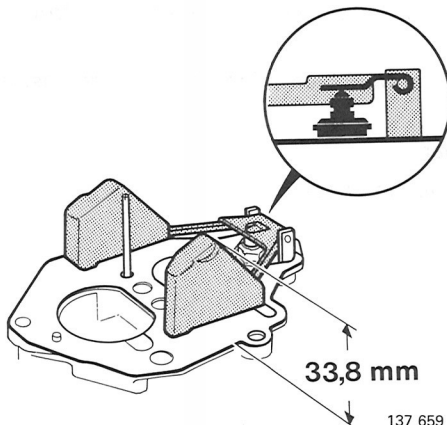
137 653

## Carburettor, reconditioning

Operations E 16–17

Use new gaskets and seals when reinstalling carburettor.

E16



33,8 mm

137 659

### Checking/adjusting float level

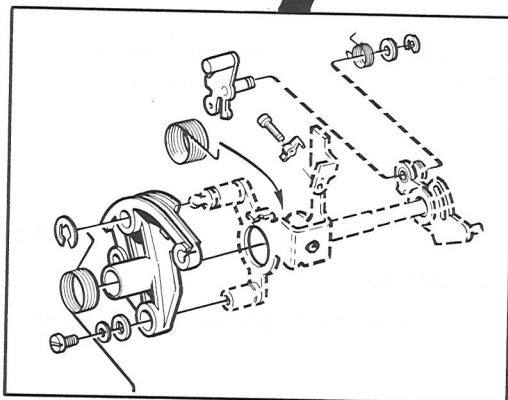
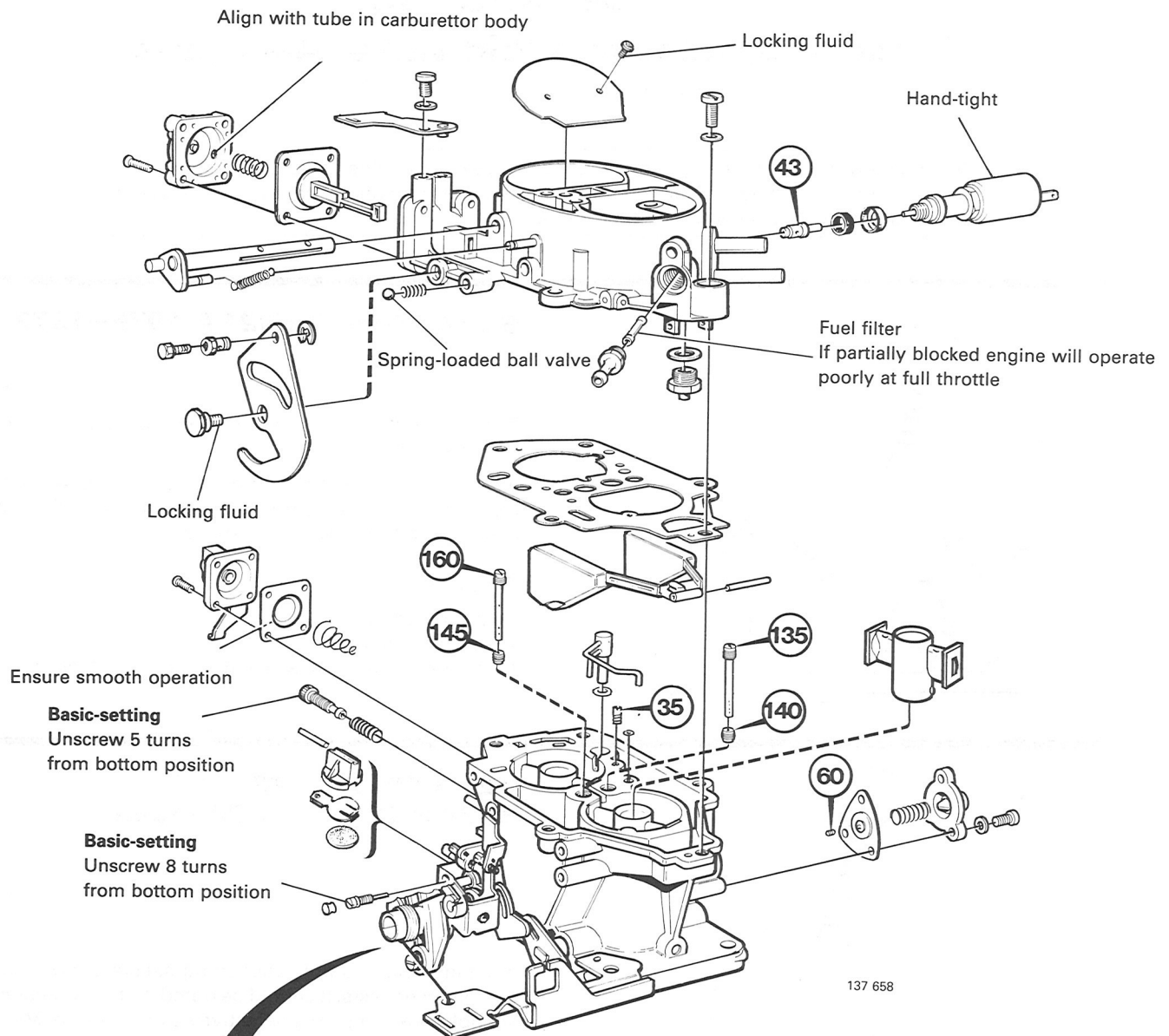
**Note:** Gasket should be left in place throughout check.

Check that both floats are in line. If necessary adjust levers.

Check float level making sure that needle valve ball is depressed.

Float level = **33.8 mm** (1.33 in). Adjust by bending steel tongue next to needle valve.

E17



135 = size of jet

E17

**IMPORTANT**

- Do not adjust the throttle valve adjustment screws
- Do not remove the throttle valve spindles or valve flaps as these parts are pre-set on a flow bench at the factory.

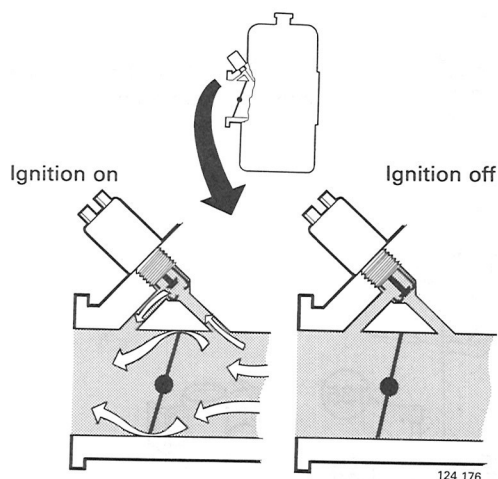
Tuning and adjustments ..... page 74  
Installing carburettor ..... page 78

## Miscellaneous

### F. Idling system solenoid valve, A-engines

B 19 K solenoid valve, refer to page 76.

Solenoid valve is wired via ignition switch and prevents engine run-on. When ignition is switched off the solenoid closes a bypass channel in carburettor reducing fuel supply and possibility of engine run-on.



#### B 27 A 1976: B 19/21 A 1975–1977

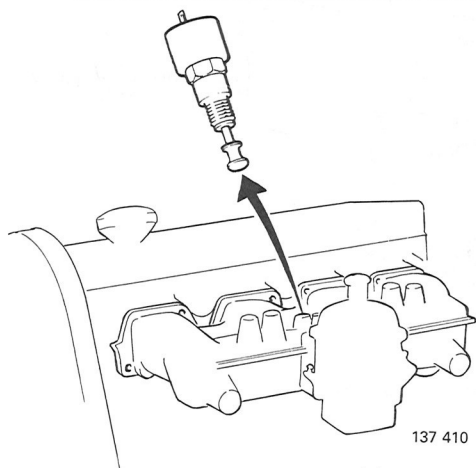
F1

The solenoid valve is standard equipment on some markets only.

**Note:** Valve is wired via air conditioning unit on vehicles so fitted, and only opens bypass channel when AC is engaged, to increase idle speed.

**If incorrect, check:**

- ground connection
- current supply
- that valve and bypass channel are not blocked.

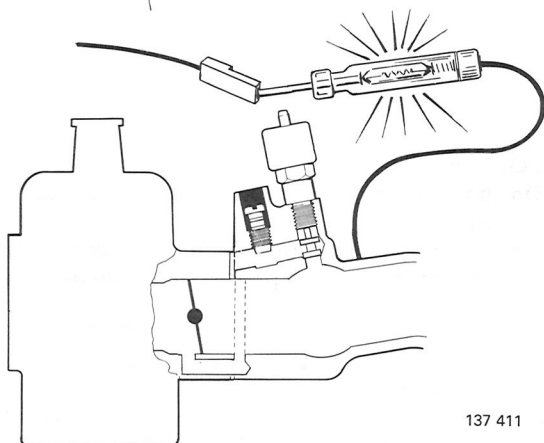


#### B 27 A 1977–1979, B 28 A B 17-19-21-23 A 1978–1984

F2

If idling system is not functioning satisfactorily, carry out following tests. It should be noted that malfunctions are not always due to a defective solenoid valve. Many solenoids which have been replaced as being faulty are in fact serviceable.

**Note:** Solenoid valve cannot be checked with engine running as resistance to opening is too great.



F3

#### Check current supply

Check for voltage at valve when ignition is switched on.

F4

**Measure resistance of solenoid valve**

Connect an ohm meter between connector on top of valve and valve body.

Resistance = **approx. 30 ohms.**

F5

**Check ground connection**

Connect an ohm meter between connector on top of valve and intake manifold.

Resistance = **approx. 30 ohms.**

If resistance is too large this indicates a poor connection between valve and intake manifold.

F6

**Check for carbon deposits on solenoid or in intake manifold**

Remove solenoid valve.

Clean threads in intake manifold and on valve.

Also check end of solenoid valve and its seat in intake manifold.

Remove carbon with wire brush (a rag wrapped around a small screwdriver can be used to clean seat in intake manifold).

**Note:** If end of solenoid valve and its seat are coated with carbon, find out why and rectify.

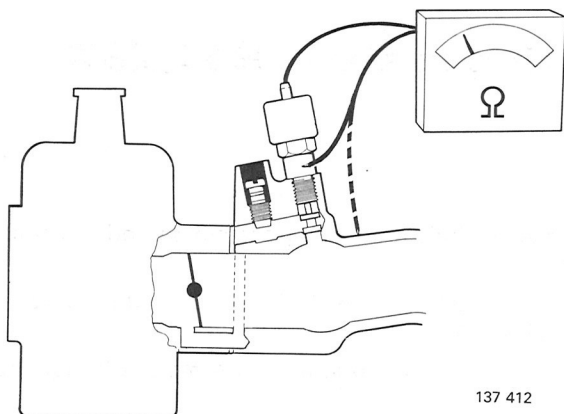
**Carbon on solenoid valve can be caused by:**

- a blocked or defective crankcase ventilation system
- a blocked or incorrectly fitted air filter cartridge
- cracks/leakage at air filter or inlet hoses (i.e. dirt in intake air)
- poor quality fuel

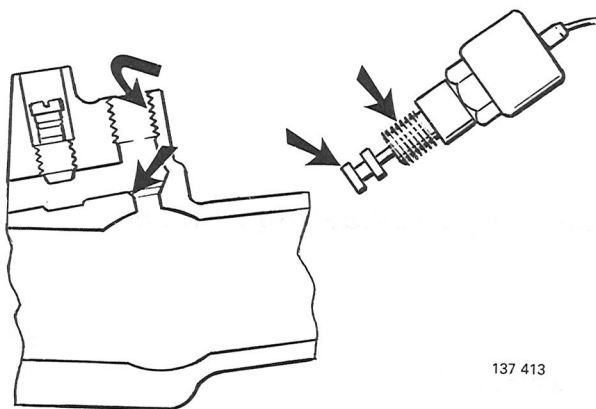
F7

**Fit solenoid valve**

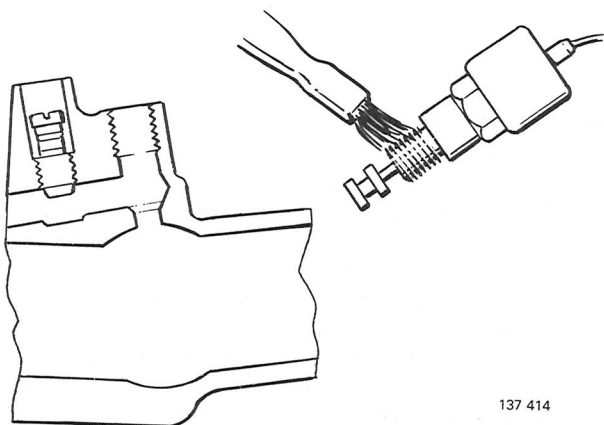
Smear threads with a thin layer of bearing grease P/N 1161 004-5 prior to installing valve.



137 412



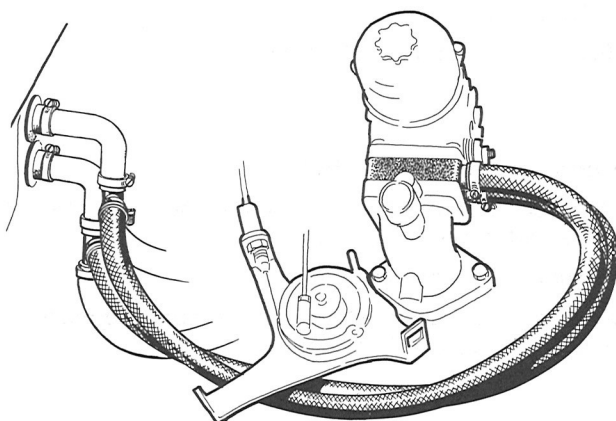
137 413



137 414

## G. Intake manifold pre-heating system, B 27/28 A

G1



127 095

Intake manifold pre-heating system is fitted as standard on:

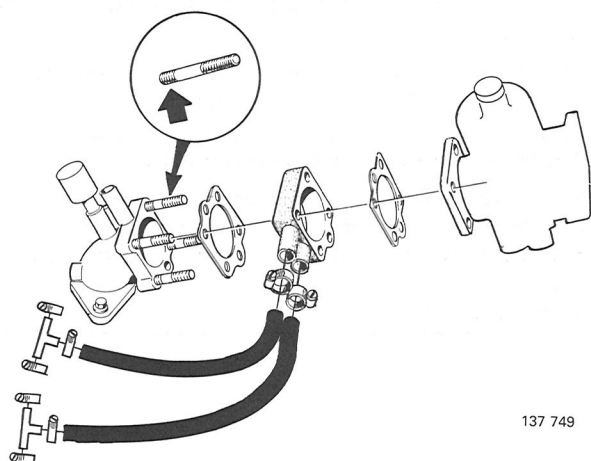
- B 27 A 1979 models designed for cold markets
- all B 28 A

System can be fitted to all B 27 A models if required.

A flange connected between carburettor and intake manifold is heated by coolant to prevent fuel condensing on walls of intake manifold in cold weather. If fuel condenses on intake manifold, this will cause a lean air-fuel mixture and uneven distribution of fuel to cylinder. Symptoms are decreasing idle speed and low output at low engine rpm.

### Installing pre-heating system

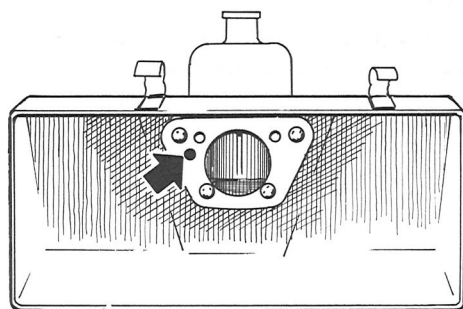
G2



137 749

#### Parts required

Description	P/N	Qty
Flange	464964-6	1
Stud	953051-0	4
Gasket	1269041-8	2
Link rod	943548-8	1
Hose	943367-3	2×650 mm
T-piece	464959-6	2
Clip	943471-3	4
Clip	943472-1	4



113 615

G3

#### Observe following

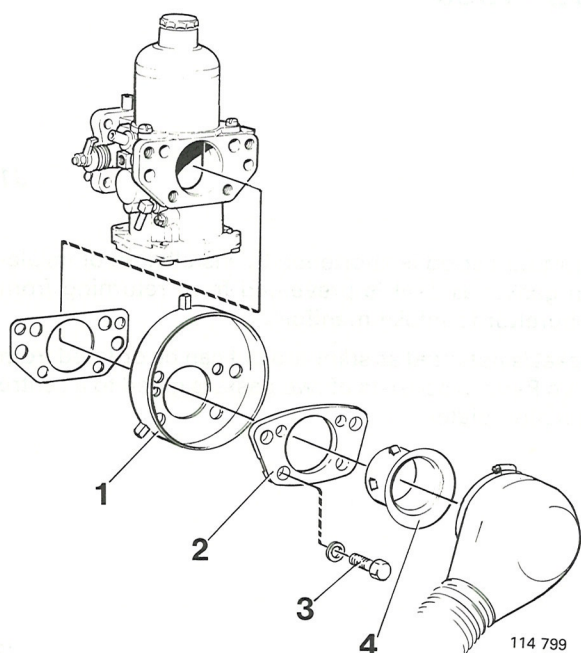
- New (longer) studs are required. Attach end with least thread to intermediate section.
- Install new gaskets on either side of pre-heating flange.
- New (longer) link rod.
- Cover plate in air filter housing should be turned so that carburettor vent hole is not blocked.
- Top-up cooling system. Check for leakage, kinks, etc.
- Check/adjust idle speed and CO after installing pre-heating system, see page 24.



## H. Inlet funnel

### B21 A SU carburettor 1979–1980

H1



#### General

Carburettor inlet funnel was introduced in production in 1980. It can also be fitted to early type 1980 models and 1979 models.

**Note:** All vehicles with warm start valve are equipped with inlet funnel.

Resistance to inlet air flow is reduced by installation of funnel. Consequently mixing of air and fuel is improved.

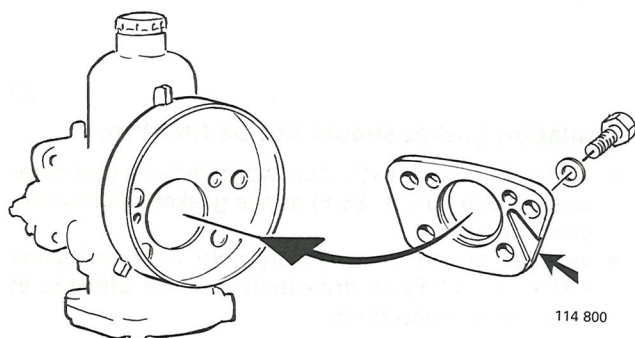
In some cases fuel consumption is reduced.

#### Installing inlet funnel

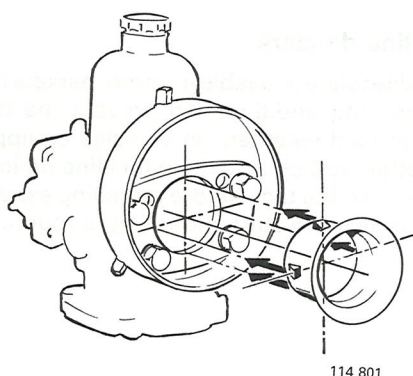
H2

#### Required parts:

1 Cover	1266112-0
2 Base plate	1274252-4
3 Screws (4)	955295-1
4 Inlet funnel	1274253-2



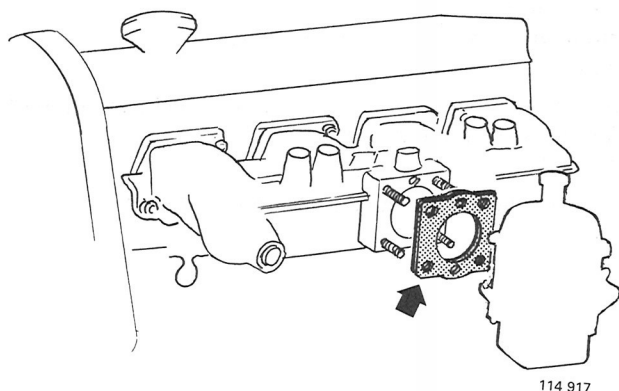
- Replace original cover, base plate and screws with new parts. Turn base plate so that notch faces cover.



- Push funnel into cover until it bottoms. Make sure that locating lugs on funnel are between screw heads.
- Reconnect inlet hose.
- Check/adjust idle speed and CO content according to page 24.

## J. Insulation gasket between carburettor and intake manifold

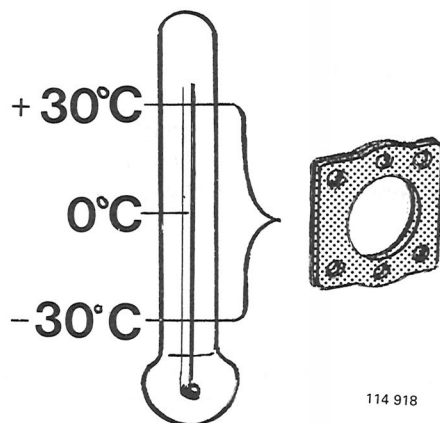
B 17-19-21 A 1979–1980



J1

Warm-up period is shortened by installation of insulation gasket as heat is prevented from returning from carburettor to intake manifold.

Gasket is not fitted as standard but can be ordered from Volvo Parts. It consists of two gaskets glued to a centre insulation plate.



J2

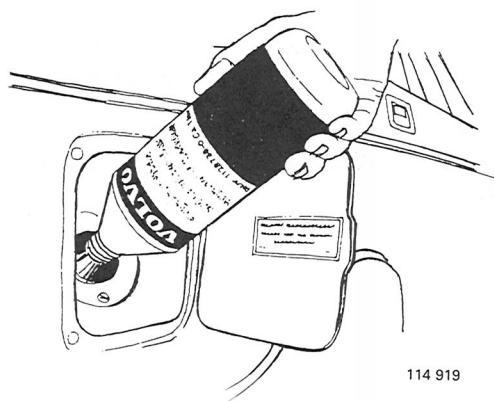
### Do not install insulation gasket on:

- vehicles with warm start valve, see page 86.
- left-hand drive vehicles with 2×8" brake servo as space between servo and carburettor is too small.

J3

### Insulation gasket should not be fitted to:

- vehicles driven in extremely warm regions (temperatures above 30°C = 86°F) as the gasket will have no effect at all
- vehicles driven in extremely cold regions (below -30°C = -22°F) as driveability will be affected at such low temperatures.



J4

### Fuel line de-icers

Petrol/gasoline available in some markets does not contain de-icing additives. To prevent the throttle valve icing in cold weather, on vehicles equipped with the insulation gasket, a suitable fuel line de-icer should be poured into the tank before refuelling especially if vehicle is difficult to start and idling is rough.

## Installation of insulation gasket

J5

### Parts required

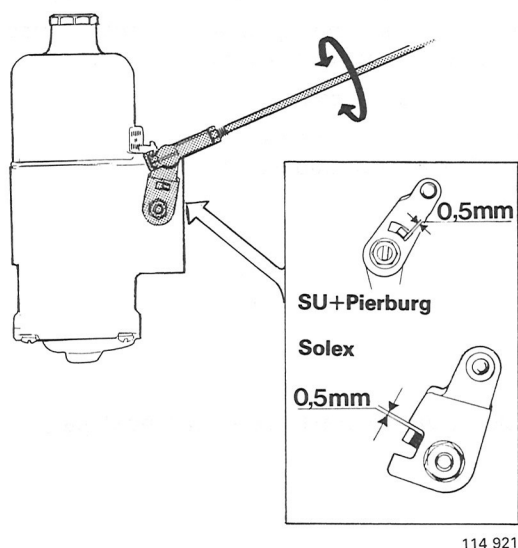
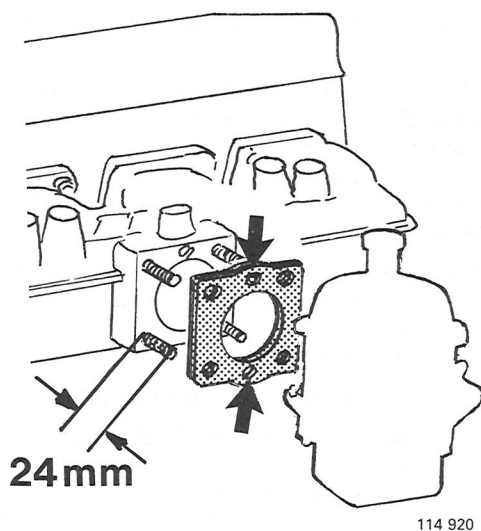
Insulation gasket P/N 1317315-8.

A new, longer link rod P/N 943314-5 is required on vehicles equipped with SU or Pierburg (DVG) carburettors.

J6

### Observe following:

- clean off pieces of gasket from carburettor and intake manifold
- unscrew studs until they protrude 24 mm (0.95 in)
- turn gasket so that idling channel is not covered.

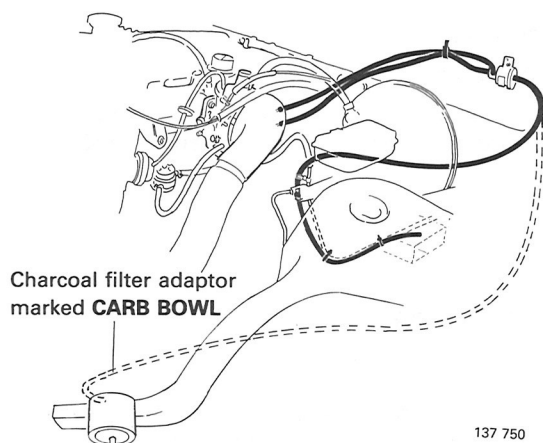


- SU and Pierburg (DVG) carburettors: connect new, longer link rod
- adjust length to obtain a play of **0.5 mm** (0.02 in) between lever and throttle linkage.

## K. Warm start valve

**B 17-19-21-23 A 1979–1984: B 19 K 1984**

K1



Warm start valve fitted to engines with Solex (Zenith) or Pierburg (DVG) carburettors. Valve is either attached to bulkhead or wheel house on vehicles equipped with SU carburettor.

### General

Warm start valve was introduced in production in April 1980.

B 21 A Europe 1984 and B 19 K engines are equipped with a slightly modified valve in a different position to that shown adjacent.

If required the warm start valve can be fitted to earlier vehicles as follows:

- 1980 Australia and Canada (not possible to fit valve to 1979 models as they are not equipped with an adaptor for charcoal filter)
- 1979–1980 other markets

Parts required to install valve and instructions:

- Solex (Zenith) and Pierburg (DVG) carburettors, see page 89.
- SU carburettor, see page 91.

Warm-up period is shortened by installation of valve.

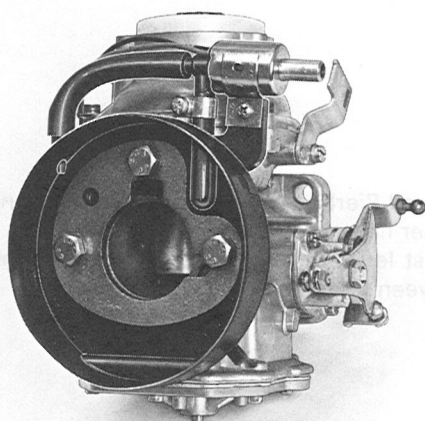
Valve is wired to ignition via fuse no. 13 (idling system solenoid valve is also wired to same fuse).

With ignition off, float chamber fumes are evacuated through valve to atmosphere or on vehicles for Australia and Canada via a charcoal filter, to atmosphere.

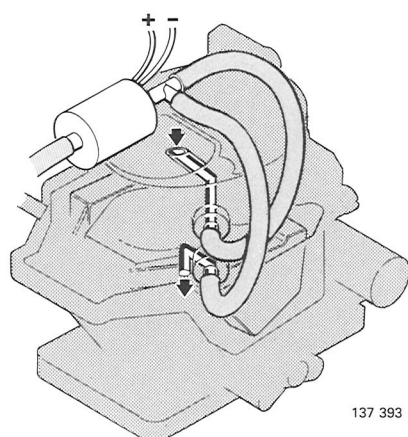
When engine is running, float chamber fumes are directed through valve to carburettor inlet.

Defective valve can cause:

- warm starting problems
- high fuel consumption/CO content
- poor running.



Warm start valve, B 21 A Europe 1984

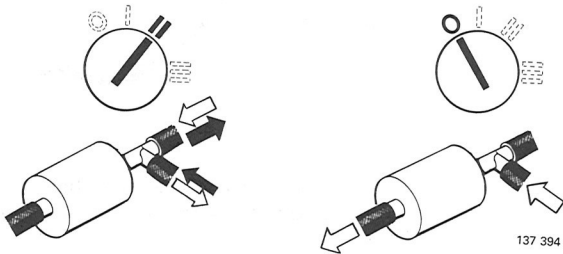


Warm start valve, B 19 K

Checking warm start valve, see next page.

## Checking warm start valve

Operations K2–5

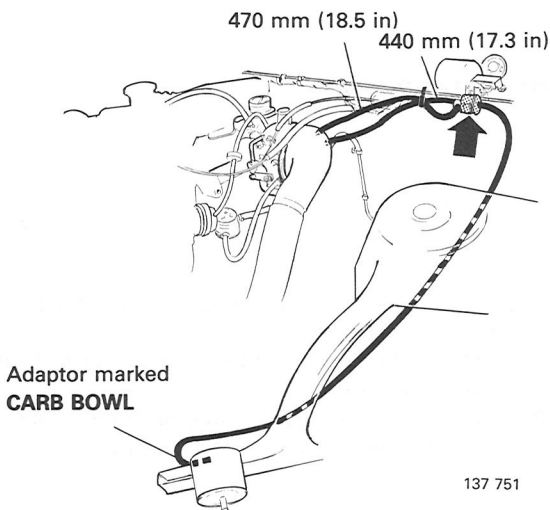


K2

### Function check

With ignition on and off, blow through valve

If incorrect, check ground connection and current supply.



Adaptor marked  
**CARB BOWL**

**Solex (Zenith) carburetors Canada and Australia**

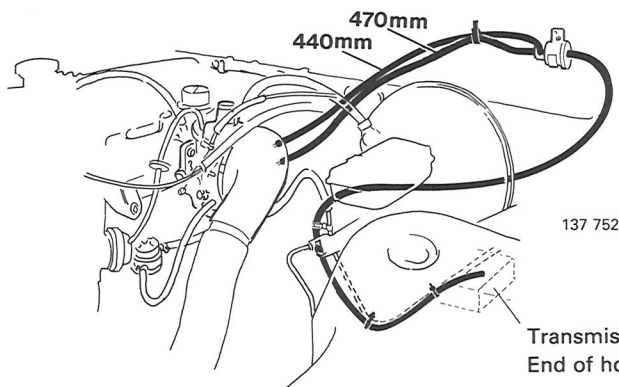
K3

### Check hoses:

- connection, routing
- are not kinked or blocked

**Note:** Length and type of hose connected between carburettor and warm start valve is important. If incorrect type of hose is connected, inlet air flow, engine output and running will be affected.

SU and Solex-Cisac carburetors, see illustrations on next page.

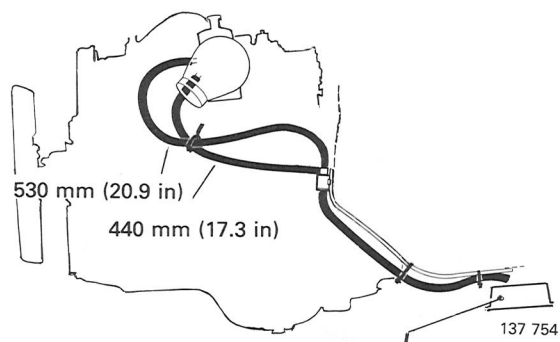
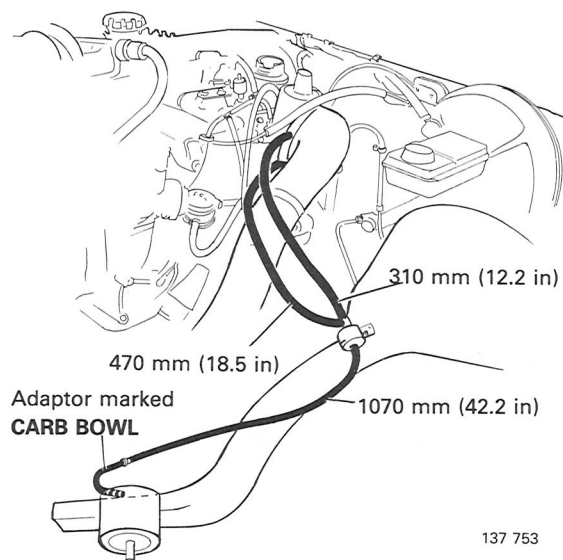


**Solex (Zenith) and Pierburg (DVG), carburetors  
excl. Canada and Australia**

Transmission crossmember  
End of hose above member, facing down.

## Warm start valve

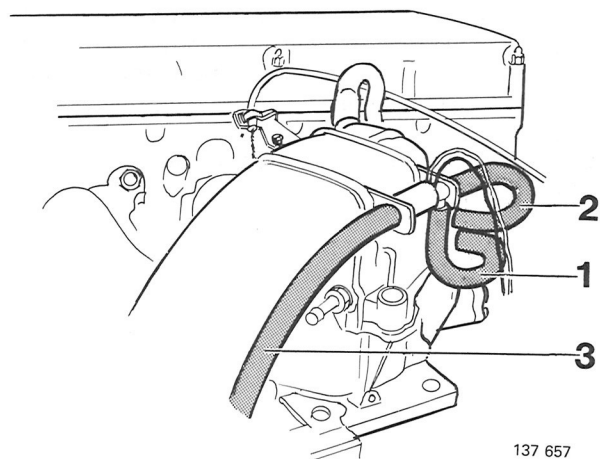
K4



Transmission crossmember  
End of hose above member, facing down.

Canada, Australia      Other markets

## SU-carburettor



Solex—Cisac carburettor (B 19 K)

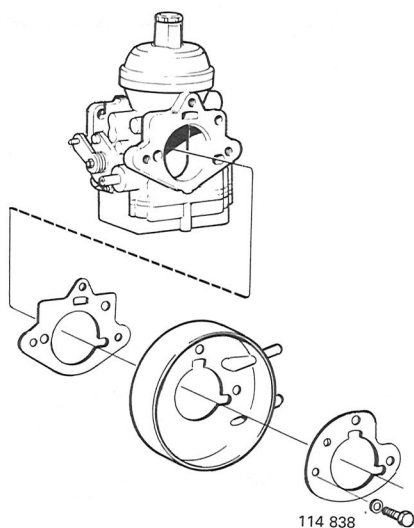
K5

- Hose 1** pre-shaped—must not be replaced by standard hosing
- Hose 2** length = 110 mm (4.33 in)—make sure that hose is not kinked
- Hose 3** end of hose should be above transmission crossmember and point downwards.



**Installing warm start valve****Solex (Zenith) and Pierburg (DVG) carburettors 1979–1980***Operations K6–11***Parts required**

Part	Part number	Qty	
		Left-hand drive	Right-hand drive
Cover	1 306 401-9	1	1
Base plate	1 306 457-1	1	1
Spring	941 907-8	3	3
Screw	955 294-4	3	3
Warm start valve	1 306 378-9	1	1
Wire	1 307 487-7	1	1
Bracket	1 229 284-3	—	1
Washer	955 946-9	1	1
Screw	955 138-3	1	3
Clamp	952 629-4	1	1
Cable tie	948 211-8	3	3
Hose (per metre)	944 075-1	2200 mm (86.7 in)	2200 mm (86.7 in)



K6

**Disconnect inlet hose from carburettor**

K7

**Attach new parts to carburettor**

Replace:

- cover
- base plate
- screws and washers.

K8

**Install warm start valve  
Connect wires and hoses**

For location of clamps, valve, etc, see next page.

Holes for retaining screws are already drilled in bulk-head.

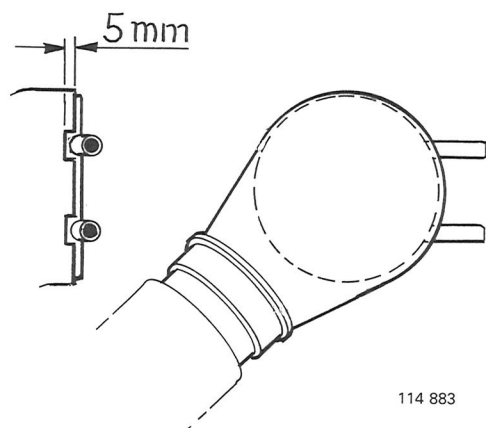
K9

**Cut notches in inlet hose to take hose connections**Hold inlet hose in position.  
Mark and cut as illustrated.

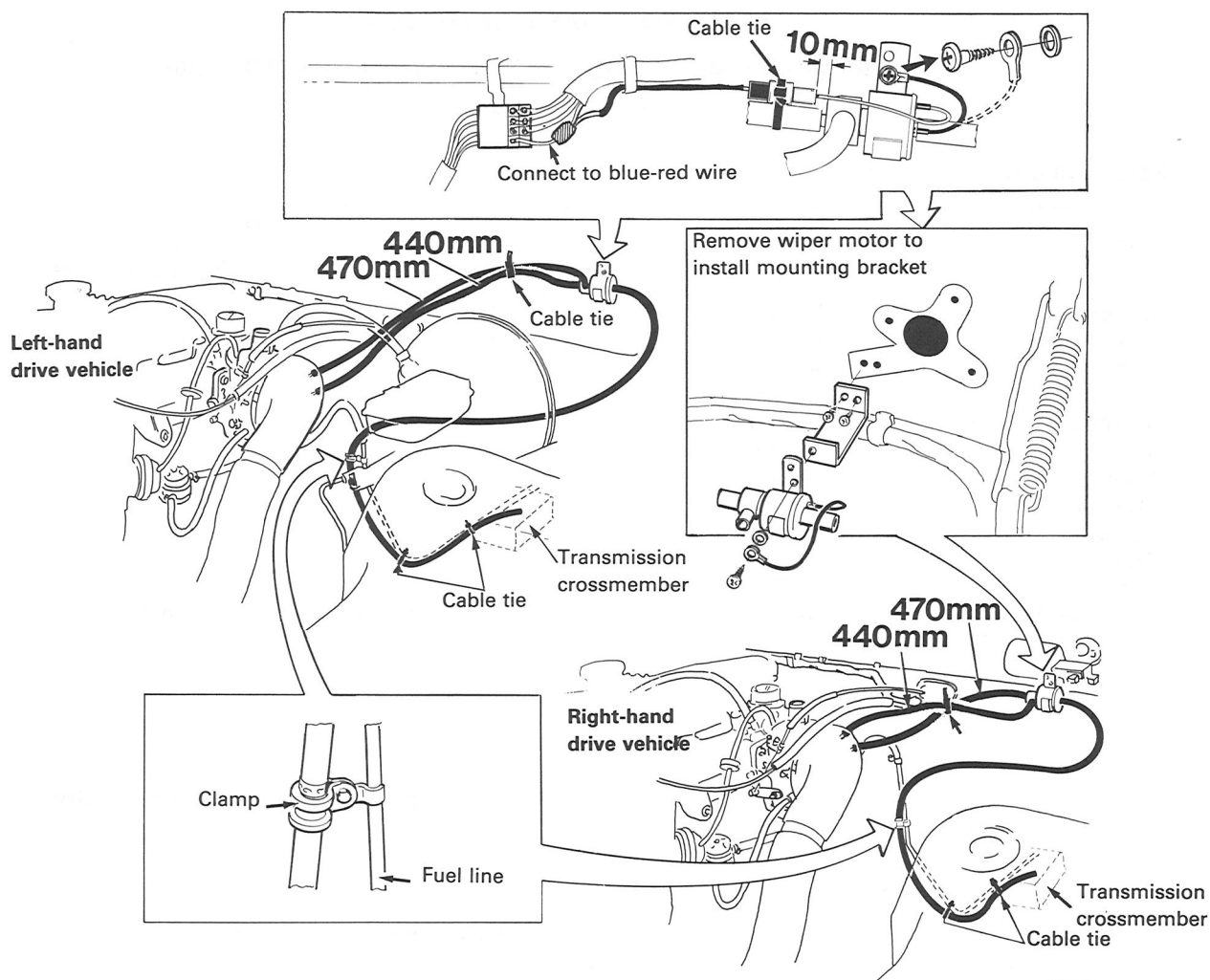
K10

**Connect inlet hose**

K11

**Check function**

## Warm start valve



137 755

**Note!**

- Length and type of hose connected between carburettor and warm start valve is important. If incorrect type of hose is connected, inlet air flow, engine output and running will be affected.
- Cut hose so that end is above transmission crossmember and pointing downwards.

## Installing warm start valve

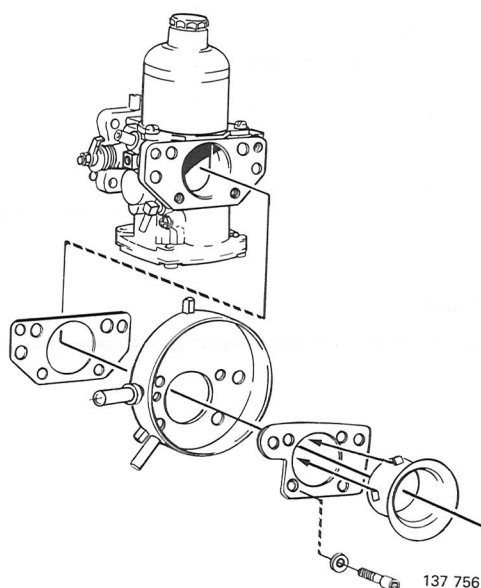
**SU carburettor, Canada and Australia 1980; other 1979–1980**

*Operations K 12–20*

### Parts required

Part	P/N	Qty
Cover	1 306 400-1	1
Base plate	1 306 456-3	1
Spring	941 907-8	4
Screw	959 220-5	4
Inlet funnel	1 274 253-2	1
Warm start valve	1 306 378-9	1

Part	P/N	Qty
Wire	1 307 487-7	1
Washer	1 955 946-9	1
Screw	955 138-3	1
Cable tie	948 211-8	3
Hose (per metre)		
Canada, Australia	944 075-1	1850 mm (72.9 in)
Other markets	944 075-1	1620 mm (63.8 in)



**K12**

**Disconnect inlet hose from carburettor**

**K13**

**Attach new parts to carburettor**

Replace:

- cover
- base plate
- screws and washers

**K14**

**Install inlet funnel**

Push funnel into cover until it bottoms. Make sure that locating lugs on funnel are between screw heads.

**K15**

**Connect warm start valve  
Connect wires and hoses**

See next page.

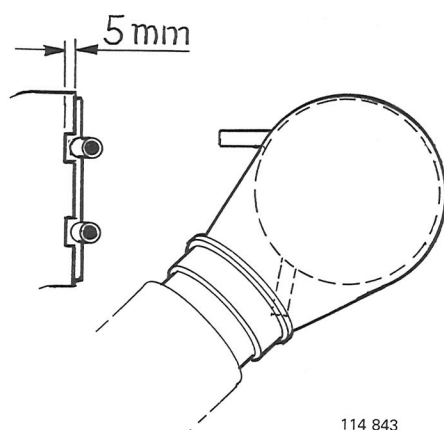
**K16**

**Cut notches in inlet hose to take hose connections**

Hold inlet hose in position.  
Mark and cut as illustrated.

**K17**

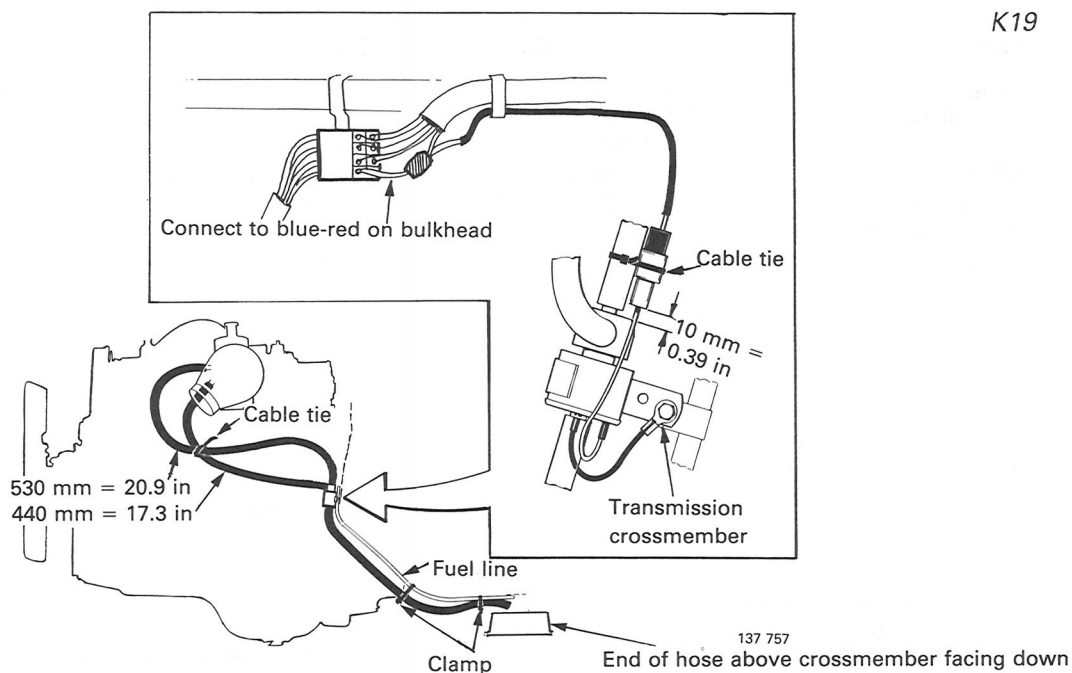
**Connect inlet hose  
Check function**



## Warm start valve

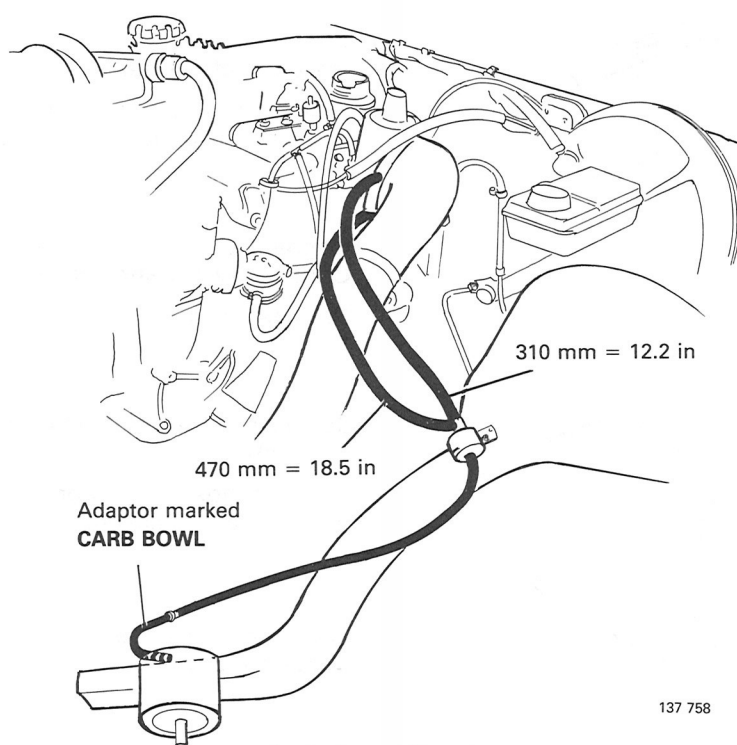
Length and type of hose connected between carburettor and warm start valve is important. If incorrect type of hose is connected, inlet air flow, engine output and running will be affected.

K18



K19

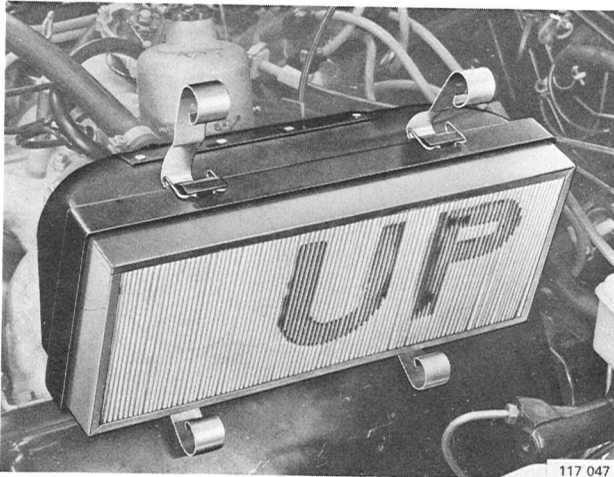
All markets except Australia and Canada



K20

Australia and Canada

## L. Air filter, air pre-heating



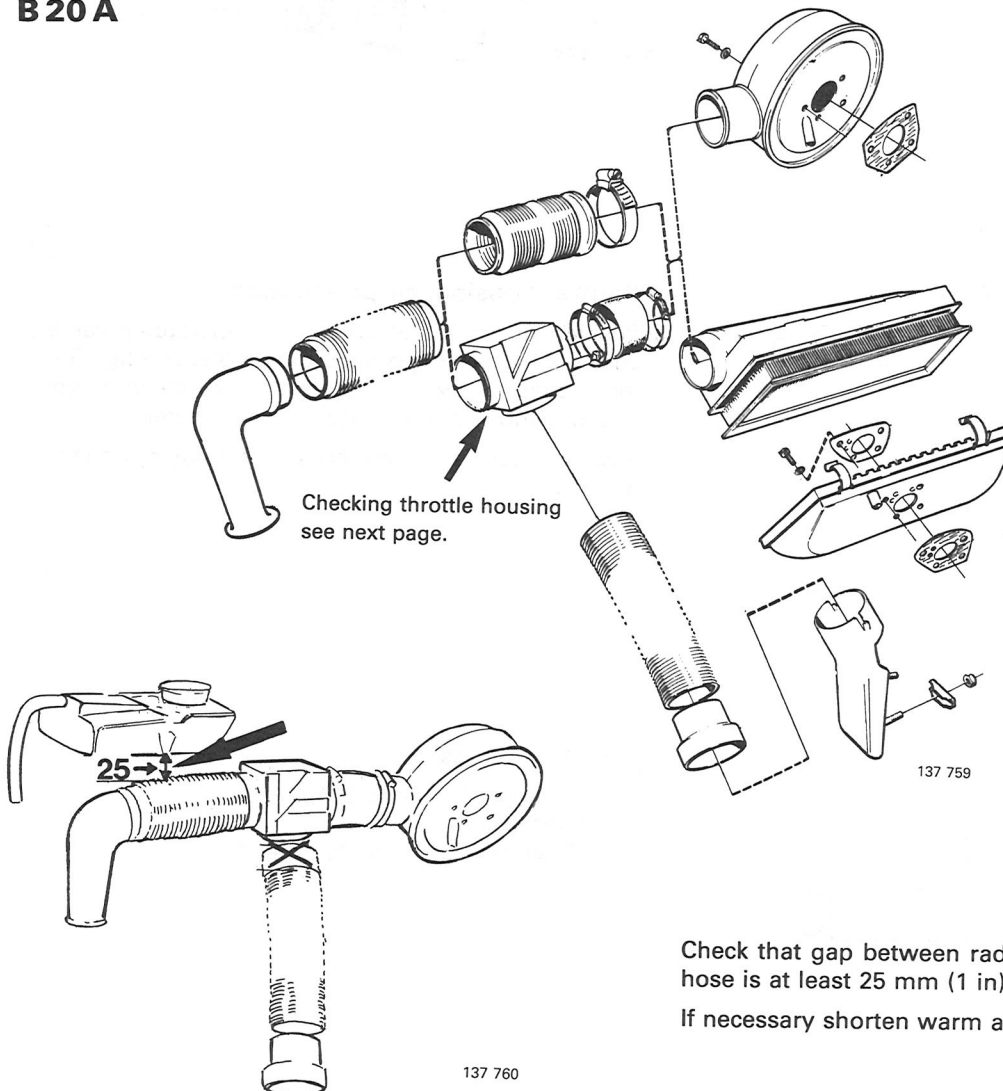
### Air filter cartridge, general

L1

Blocked air filters cause increase in fuel consumption. Always fit new filter if old one is blocked, dirty, etc. Never dampen or smear filter with oil before installation.

## B20 A

L2

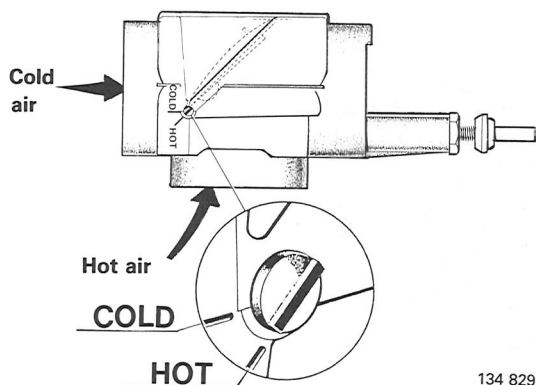
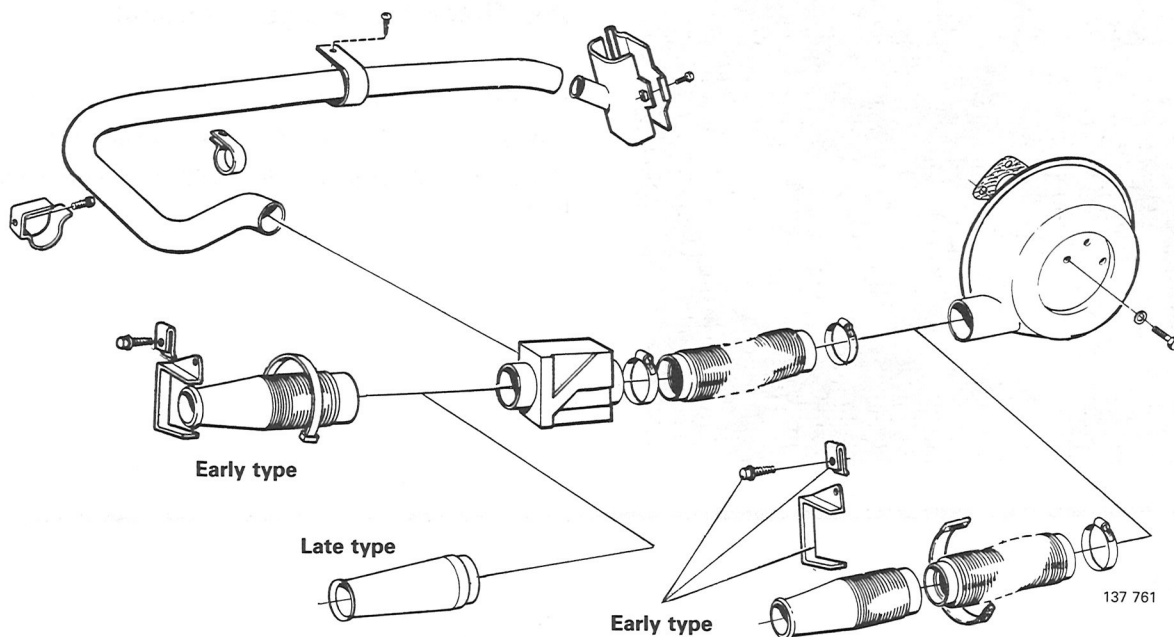


Check that gap between radiator expansion tank and hose is at least 25 mm (1 in).

If necessary shorten warm air hose.

**B 17-19-21-23 A 1975-1978**

L3

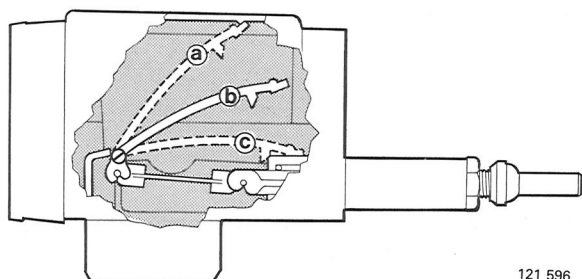


L4

**Shutter housing, air pre-heating**

Position of shutter at different temperatures can be checked by observing ends of spindle, see fig. For a more exact check it is necessary to remove shutter housing and test thermostat in warm water.

If defective, replace complete shutter housing and thermostat.



**Shutter positions:**

- a (hot air only) = up to **25°C (77°F)**
- b (intermediate)
- c (cold air only) = from **35°C (95°F)**



**B 17-19-21-23 A 1979-1984**  
**B 19 K 1984**

*L5*

Connection to carburettor on B19K is slightly different to that shown below.

**Inlet funnel, SU**

Some 1979, all 1980–84,  
see also page 83

Assembly different on vehicles  
with warm start valve

Type varies with engine type

Right-hand  
drive vehicles

137 762

**1326352**

*L6*

### Air filter

For cars driven in dry, dusty, polluted areas a special filter is available. This filter has a higher filtering ability than standard filter and should only be used as specified.

P/N = 1326352-0 (stamped on filter).

134 863

1981-

Ø14,5mm

134 833

L7

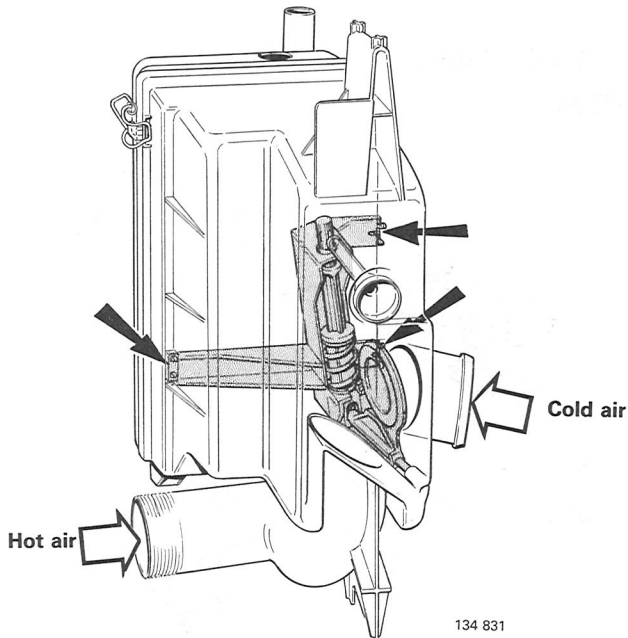
## Air filter cover

When replacing cover:

- Engines with Pulsair system  
Drill 14.5 mm = 0.57 in hole in hose connector.
- 1981—:  
Plug hole in cover

## Air filter, air pre-heating

L8

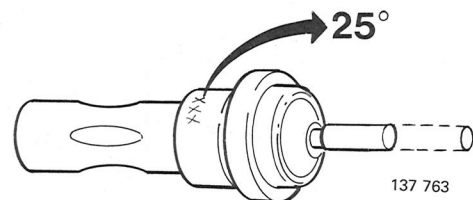


## Air pre-heating

Shutter position:

- hot air only = up to 20°C (68°F)
- cold air only = from 30°C (86°F)

Shutter mechanism and thermostat are held in position by plastic clips, see fig.



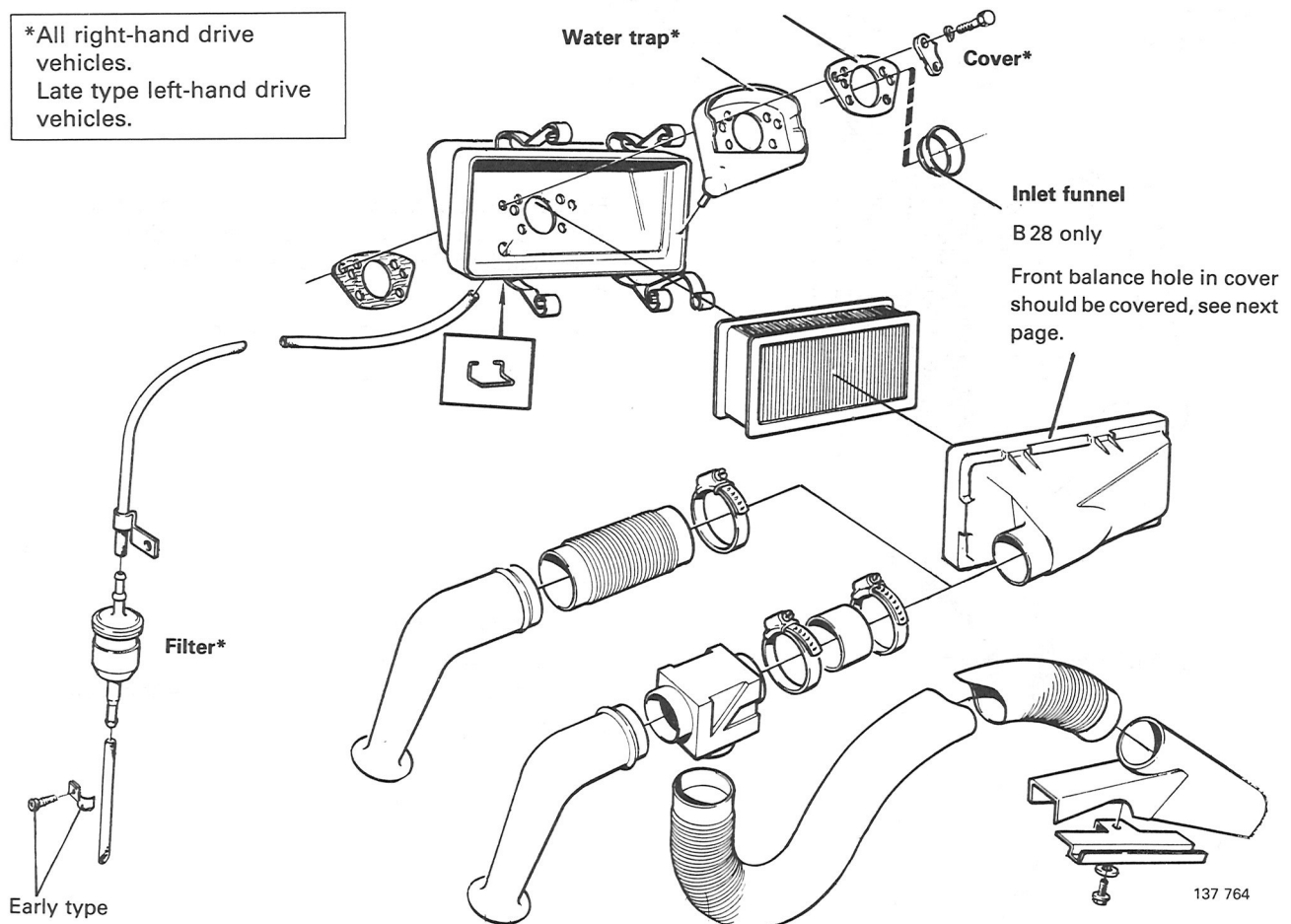
Thermostat marking

## B 27/28 A

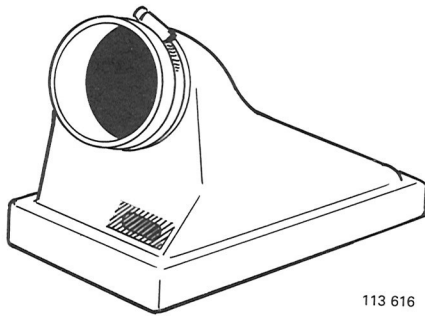
L9

Turn plate so that carburettor vent hole is not blocked.

\*All right-hand drive vehicles.  
Late type left-hand drive vehicles.



L10

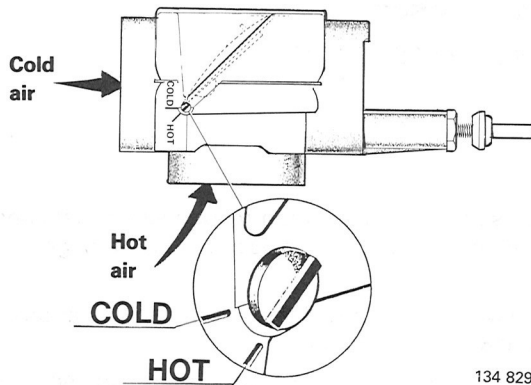


113 616

**Air filter cover**

Front balance hole in cover should be covered with adhesive tape.

L11



134 829

**Shutter housing, air pre-heating**

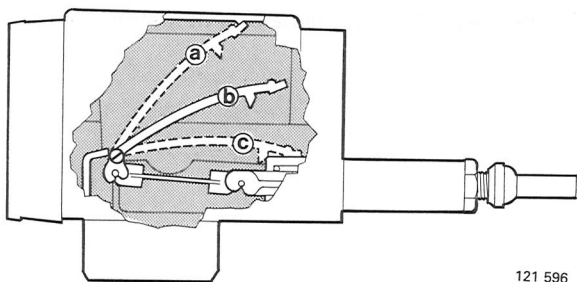
Position of shutter at different temperatures can be checked by observing ends of spindle, see fig.

For a more exact check it is necessary to remove shutter housing and test thermostat in warm water.

If defective, replace complete shutter housing and thermostat.

Two types of shutter housings are available:

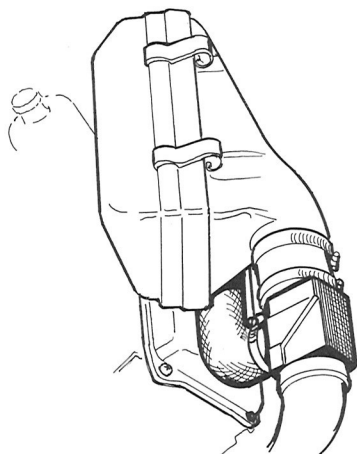
- early type P/N 463287-3 (superseded by P/N 1274243-3)
- late type P/N 464759-0 or P/N 1274243-3



121 596

**Shutter positions:**

	Early type	Late type
a (hot air only) = up to ...	+25°C (77°F)	+37°C (99°F)
b (intermediate)		
c (cold air only) = from ..	+35°C (95°F)	+47°C (117°F)



113 614

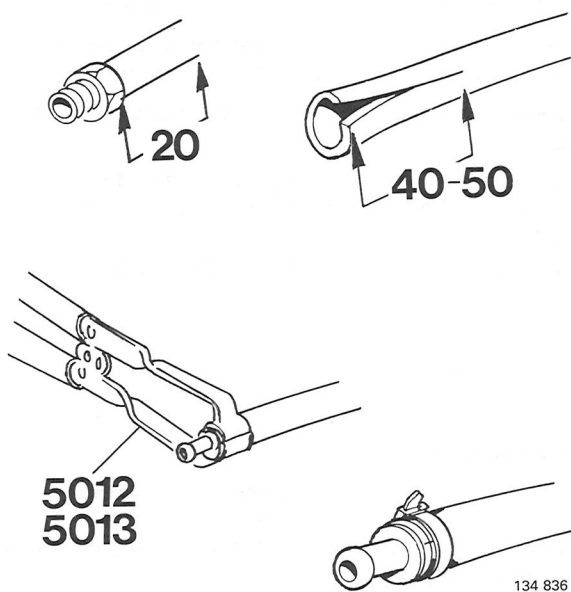
Shutter housing should be installed in such a way that pre-heating hose is at right angles to shutter housing. It should then be routed alongside rocker cover and air filter.

## M. Fuel lines

### Replacing fuel line nipples (plastic hoses)

Special tools: 5012, 5013

M1



Always use new nipples when reconnecting fuel lines since sealing surfaces of nipples are easily damaged on removal.

To fit a new nipple, cut fuel line at right angles approx. 20 mm (0.8 in) from adaptor.

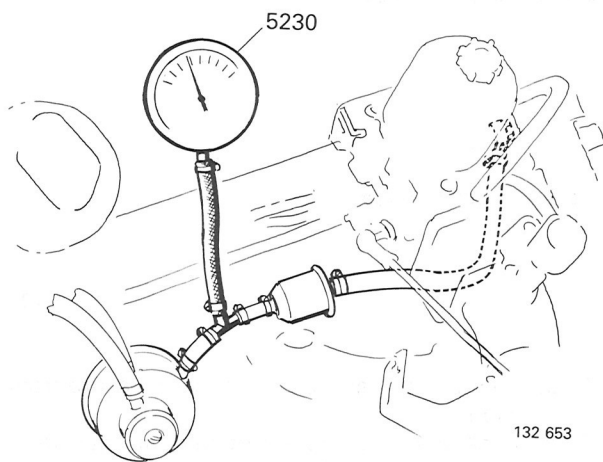
Cut a slit in outer shielding hose approx. 40–50 mm (1.6–2.0 in) long.

Remove dirt from fuel line and blow clean.

Use pliers **5012** (**5013** for larger sizes) as shown. Heat fuel line with hot air e.g. use a hair dryer, and press in new nipple. White spirit can be used as a lubricant.

Fold back outer shielding hose and fit a strip clamp.

## N. Fuel pump



Connection of pressure gauge 5250 on B 27/28

### Checking fuel line pressure

Special tool: 5230

N1

Measure fuel line pressure at same level as pump at following engine speeds:

- B 27/28 **50 r/s** (3000 r/min)
- other types **16.6 r/s** (1000 r/min)

Connect pressure gauge **5230** as illustrated and run engine at specified speed until pressure stabilizes.

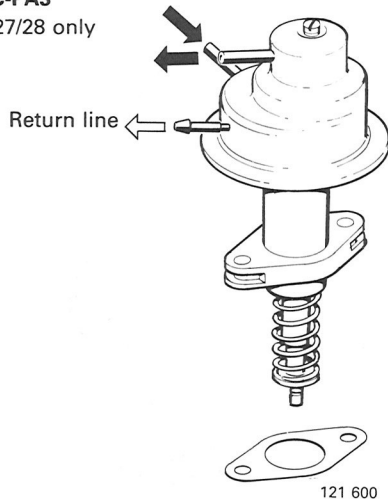
Fuel pressure = **15–27 kPa** (2.1–3.8 psi).

### Replacing fuel pump

N2

Complete pump must be replaced if defective.

**AC-PA3**  
B 27/28 only



### Cleaning fuel pump

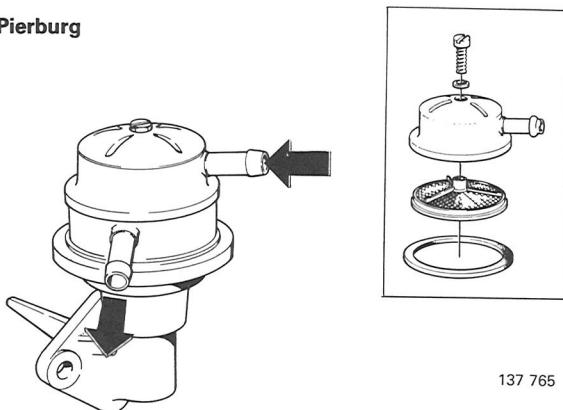
N3

Different types of fuel pumps are in use.

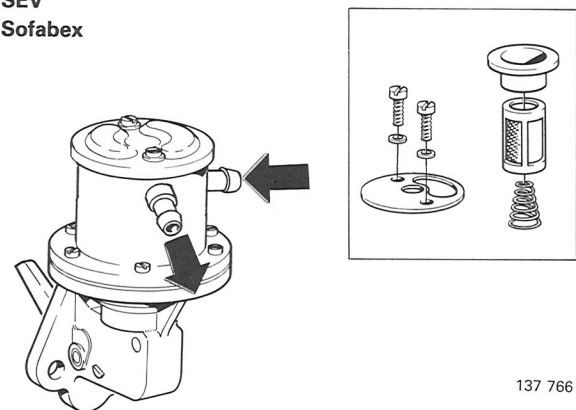
Replacement filters are available for Pierburg, SEV and Sofabex pumps.

**Note:** B 21 A Canada (all year models) and Australia (late types) are equipped with Pierburg pumps incorporating a roll-over valve to meet legal requirements. The valve cuts off fuel supply to pump thus minimizing fuel leakage in the event of a collision.

**Pierburg**

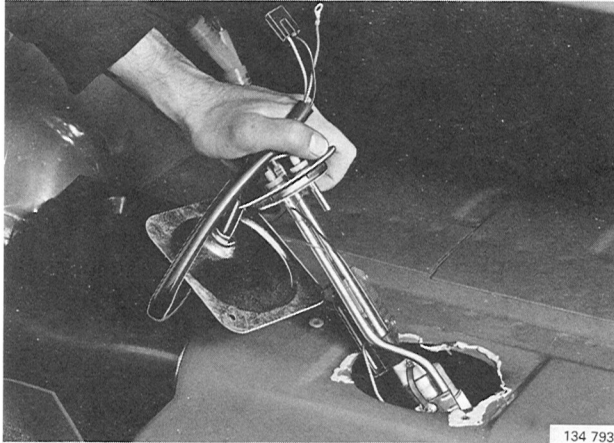


**SEV  
Sofabex**



Spring fits into lug on pump cap.

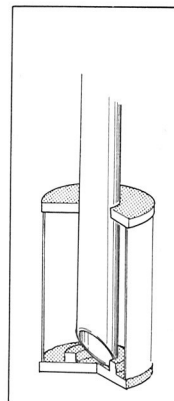
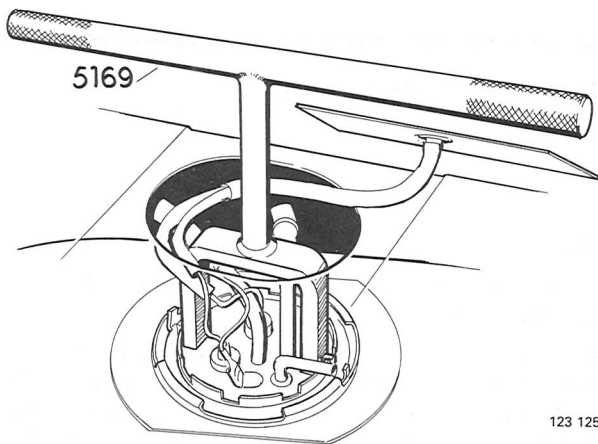
## O. Tank-gauge sender unit



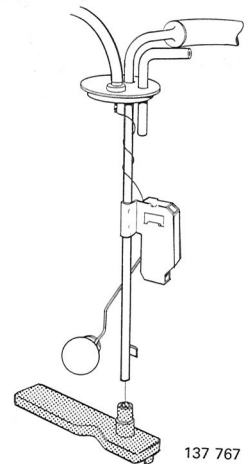
### Replacing filter

01

- Unscrew fuel tank cap to release overpressure from fuel system.
- Remove sender unit through opening in rear floor. Use removing tool **5169**.
- Replace filter. Make sure that filter bottoms properly.
- Refit sender unit. Install **new** O-ring, lubricated with glycerine.



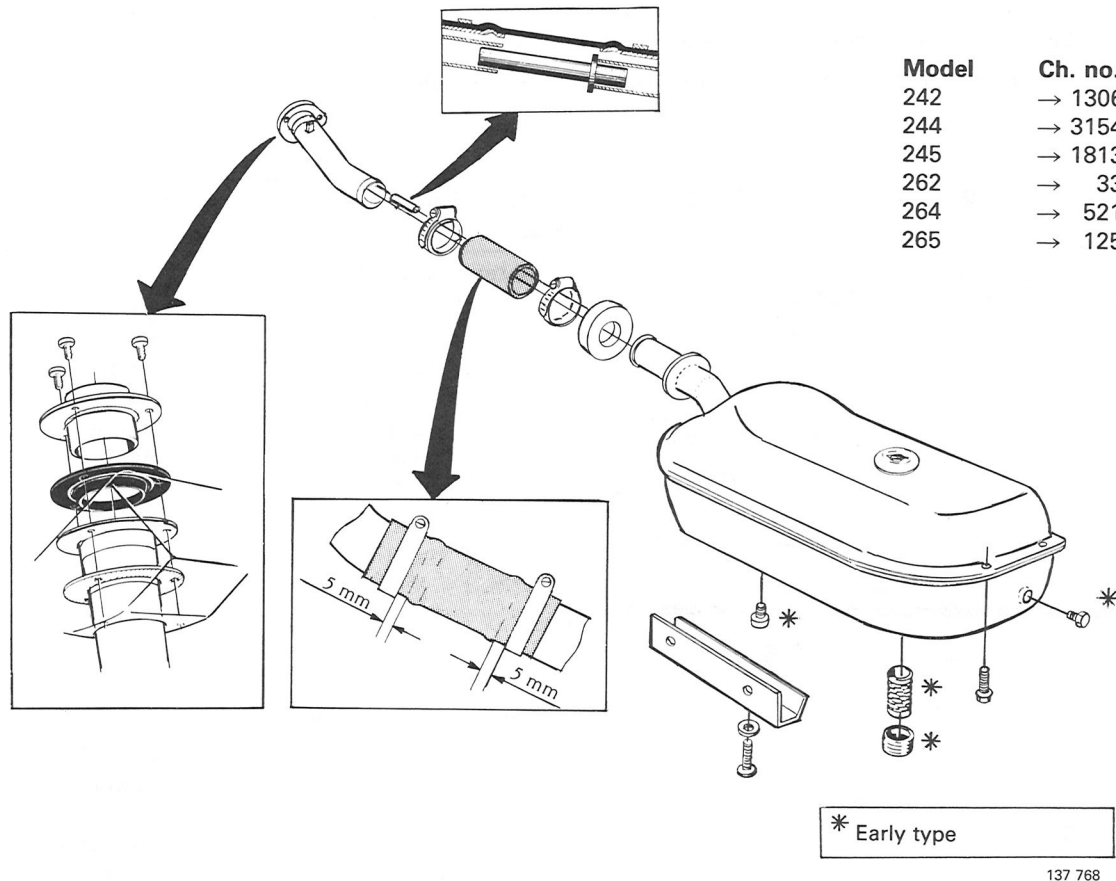
Early type



Late type

## P. Fuel tank 1975—middle of 1978

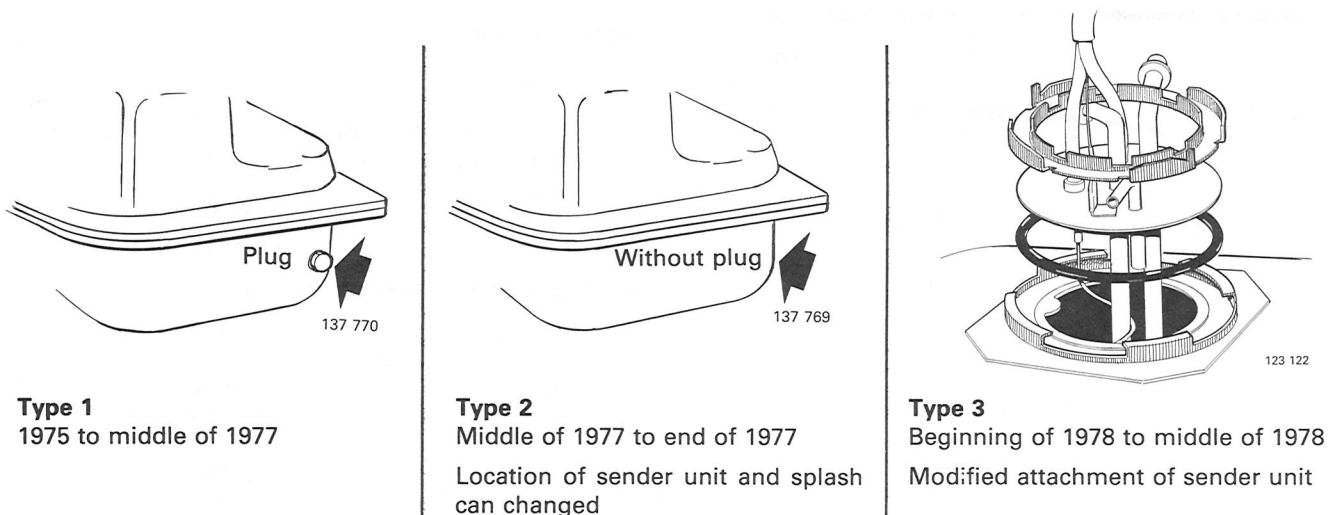
P1



## Different types of fuel tanks

P2

Three different types of fuel tanks have been fitted to vehicles manufactured between 1975 and middle of 1978. The difference between the types lies in the location of the tank sender unit and splash can in the tank, and also in the attachment of the tank gauge sender unit.





## Fuel tank

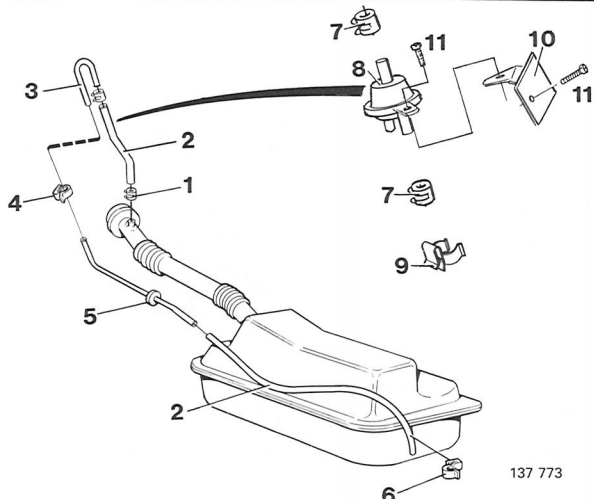
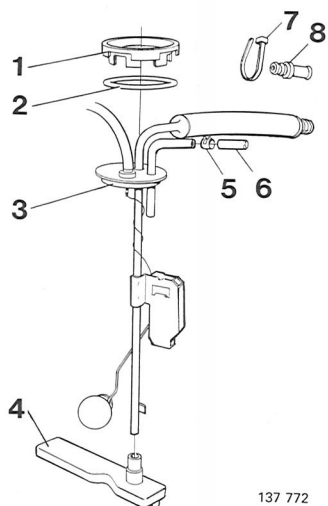
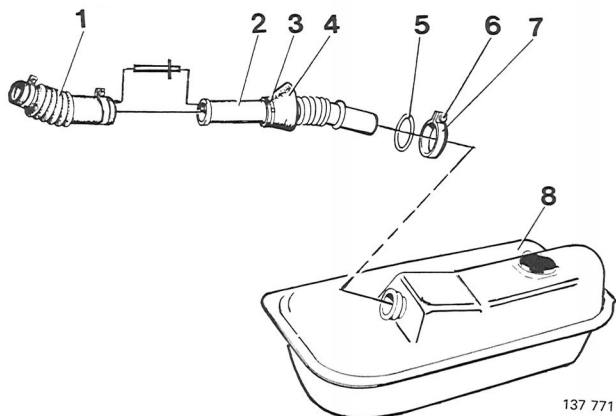
## Replacing fuel tank

Operations P3-18

P3

Only late type fuel tanks are available from Parts Dept. (see page 107). For fitting new type of tank to earlier vehicles, it is necessary to replace a number of parts. Also, for Australia and Canada, the evaporative system has to be modified.

Parts required for modification, see below. Method, see page 103.



Item No.	Part	P/N	Qty
<b>Fuel tank incl. filler tube</b>			
1	Filler hose	1304240-3	1
2	Filler tube	1255189-1	1
3	Clip	948211-8	2
4	Rubber seal	1254461-1	1
5	O-ring	949282-8	1
6	Screw	955274-6	1
7	Clamp	1254606-5	1
8	Fuel tank	1255754-2	1
<b>Level sender and tank pump</b>			
1	Lock ring	1235324-9	1
2	O-ring	949276-0	1
3	Level sender	1258752-3	1
4	Filter	1258751-5	1
5	Clamp (excl. B 27)	647709-5	1
6	Sealing sleeve(excl. B 27)	687245-1	1
7	Cable tie (1975)	948210-0	1
8	Nipple (1975)	947411-2	1
<b>Evaporative system</b>			
1	Clamp	946709-3	2
2	Hose	192034-7	1150 mm
3	Bundy tube (2/4-door)	944314-1	800 mm
3	Bundy tube (5-door)	944314-1	900 mm
4	Clip	192248-3	1
5	Grommet	941264-4	1
6	Clip	1254513-3	1
<b>Also required for Australia and Canada:</b>			
7	Clamp	946709-3	4
8	Evaporative system valve	1255999-1	1
9	Clip	1247493-8	1
10	Mounting bracket (5-door)	1246409-5	1
11	Screw (5-door)	955138-3	2

## Installing a new type of fuel tank

Operations P4–20

Special tools: 5012 (1975), 5169

P4

### Pull down old fuel tank

Disconnect battery ground lead as a safety precaution.  
Drain fuel.

P5

### Drill hole to take evaporative system tube

Drill a 19 mm (0.75 in) hole in floor panel next to hole for filler tube.

Fit rubber grommet.

P6

### Install fuel level sender:

- filter
- sealing sleeve and clamp. (exl. B 27 A).

P7

1975 models only

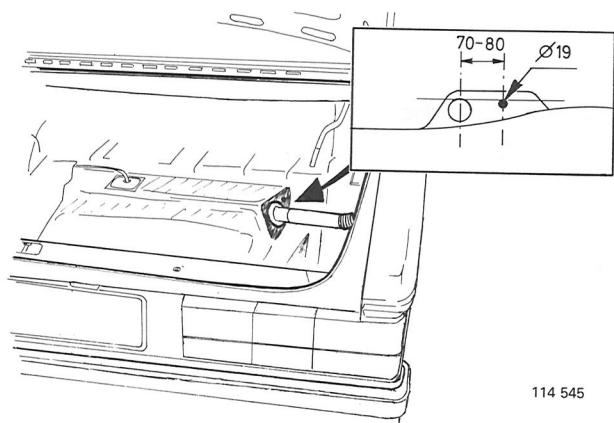
### Replace fuel line nipple

Cut fuel line approx. 20 mm (0.8 in) from adaptor. Cut 40–50 mm (1.6–2.0 in) along outer casing.

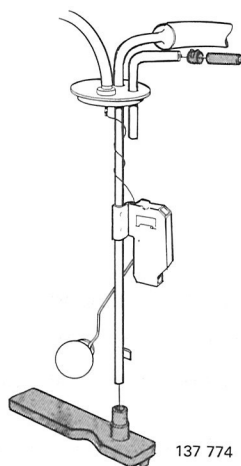
Attach pliers 5012.

Heat hose with warm air (e.g. from a hair dryer) and press in new nipple.

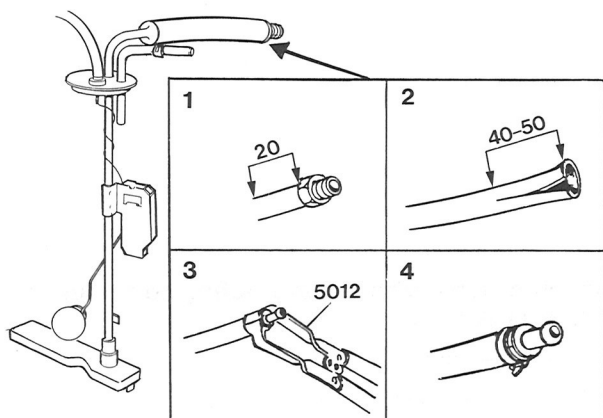
Fold back hose and secure with a clamp.



114 545

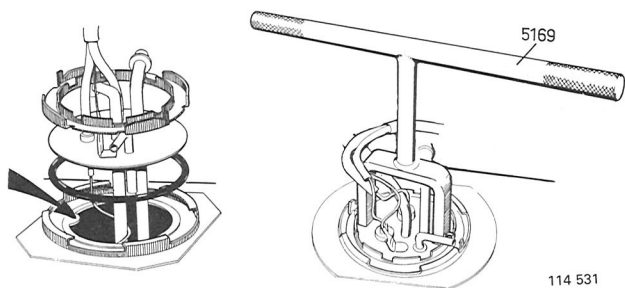


137 774



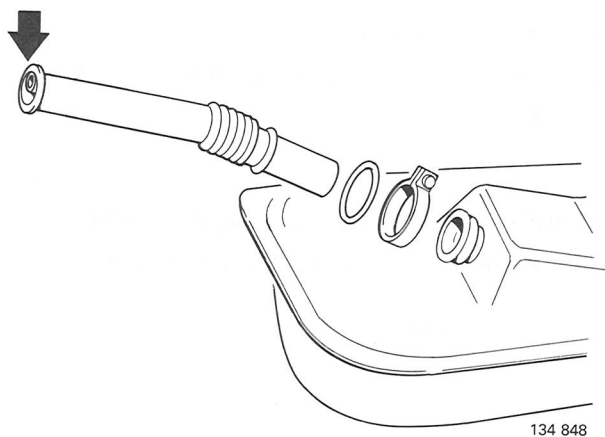
137 775

## Fuel tank

**Install tank-gauge sender**

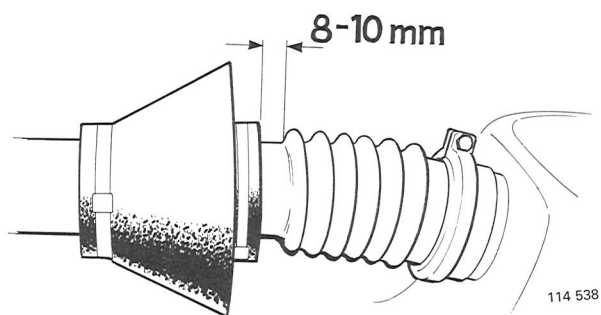
Install new O-ring lubricated with glycerine.  
Install lock ring using **5169**.

P8

**Connect filler tube**

Turn tube so that small breather tube points upwards.

P9

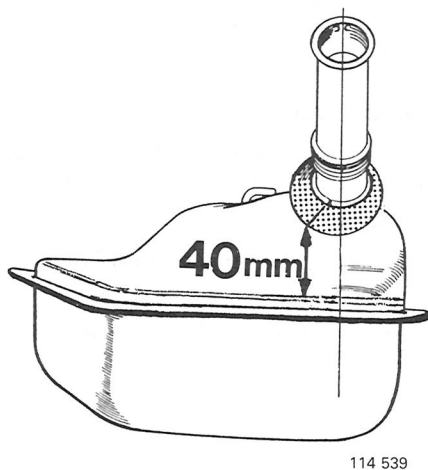
**Attach rubber seal to filler tube**

Remove backing paper before pressing on seal

Joint on seal should point diagonally downwards and backwards.

Attach two hose clamps. Remove surplus pieces of clamp.

P10

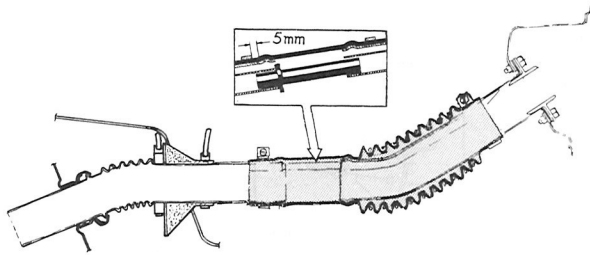
**Coat top of tank with a rustproofing compound**  
**Position tank in car**

Reconnect fuel line.

B27 A: also reconnect fuel return line.

P11

P12

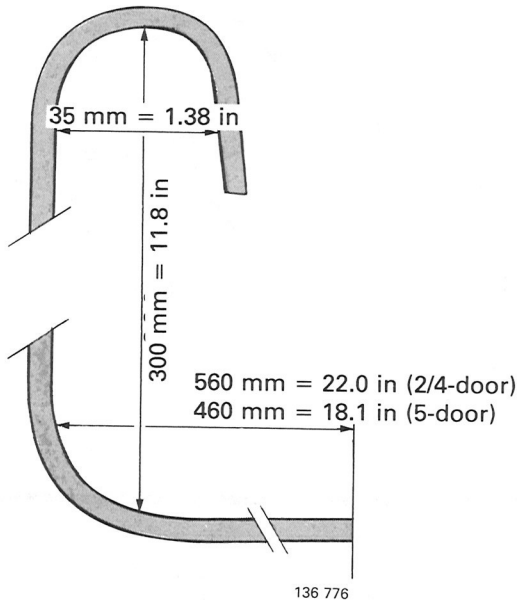


114 540

**Connect filler hose**

Observe location of inner evaporative system hose.

P13

**Shape a new evaporative hose**

136 776

P14

**Install evaporative system**

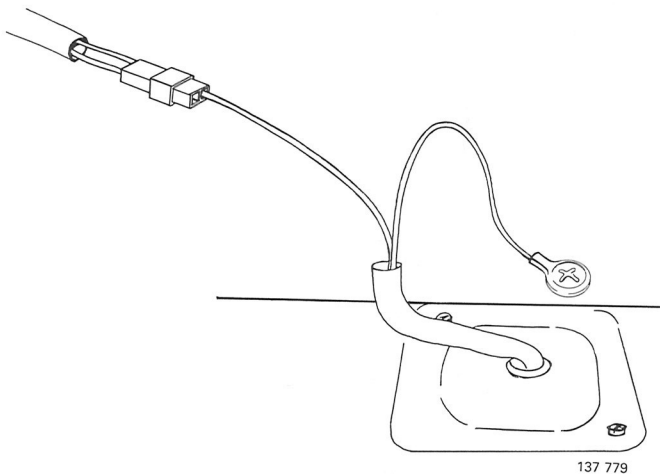
See illustrations on next page.

P15

**Attach cover to sender unit  
Reconnect wiring**

Do not forget to install rubber grommet.

P16

**Fill fuel, refit cap  
Reconnect battery and start engine**

137 779

P17

**Check:**

- for leakage
- fuel gauge.

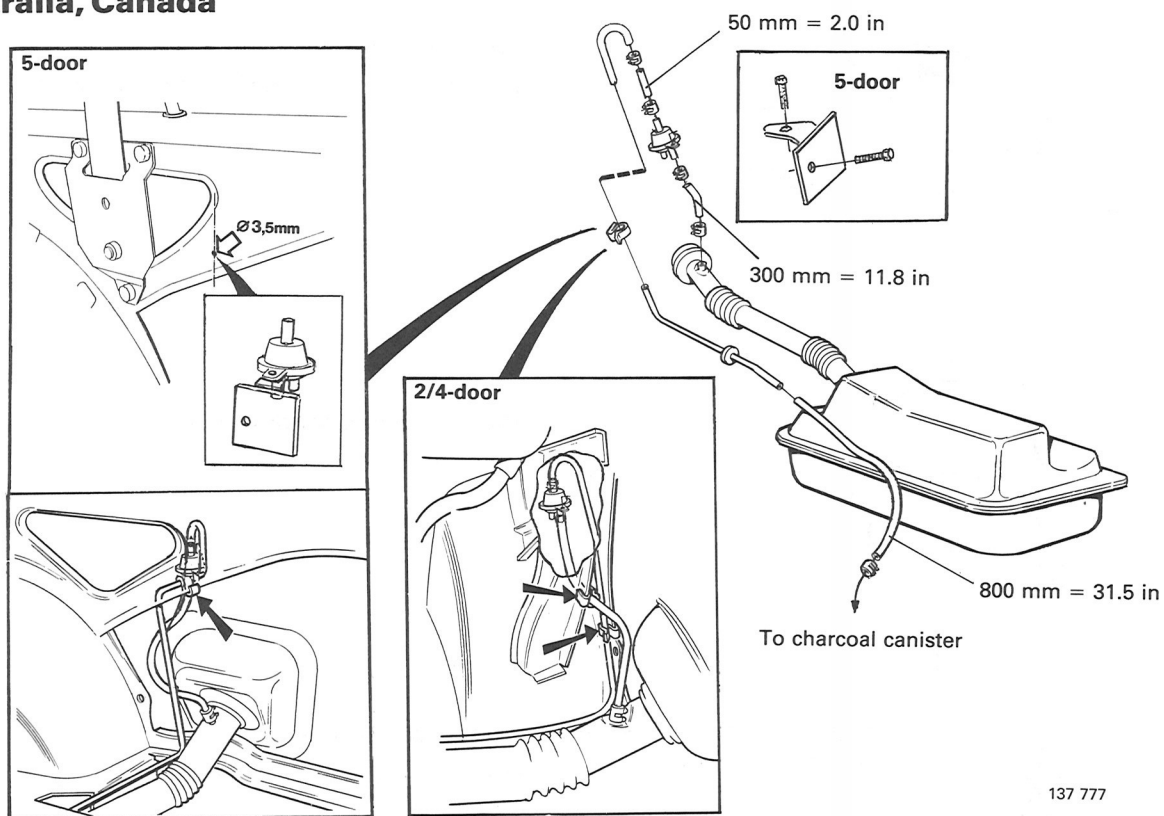
P18

**Refit panels and boot mat  
Rustproof underside of fuel tank**

## Fuel tank

## Australia, Canada

P19

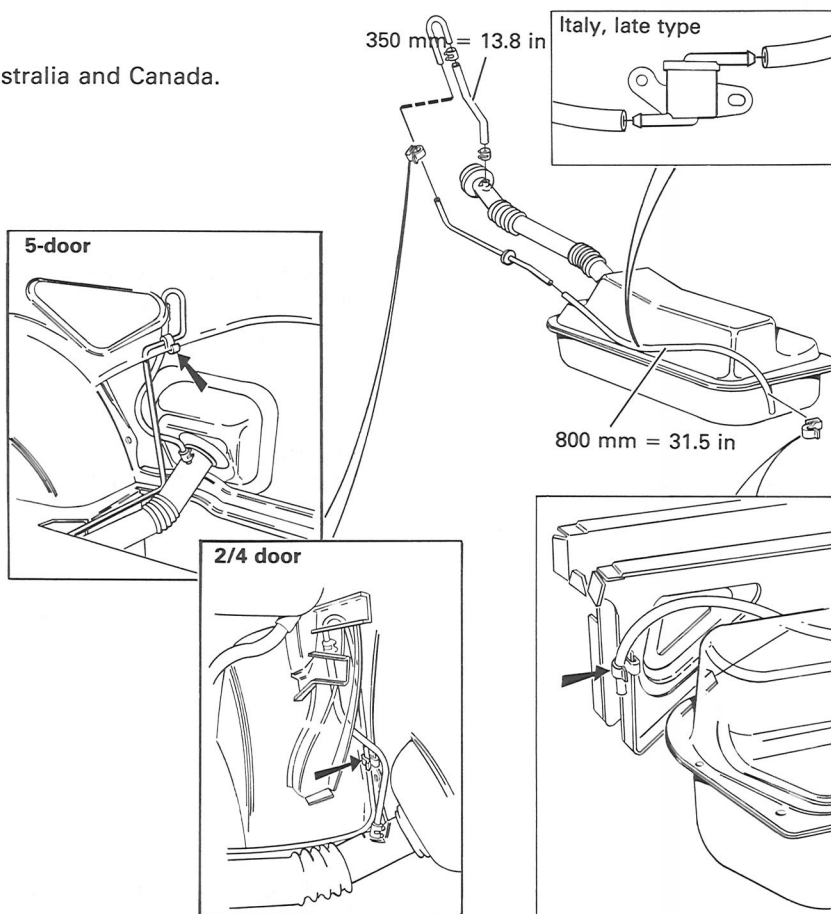


137 777

## Other markets

All markets except Australia and Canada.

P20



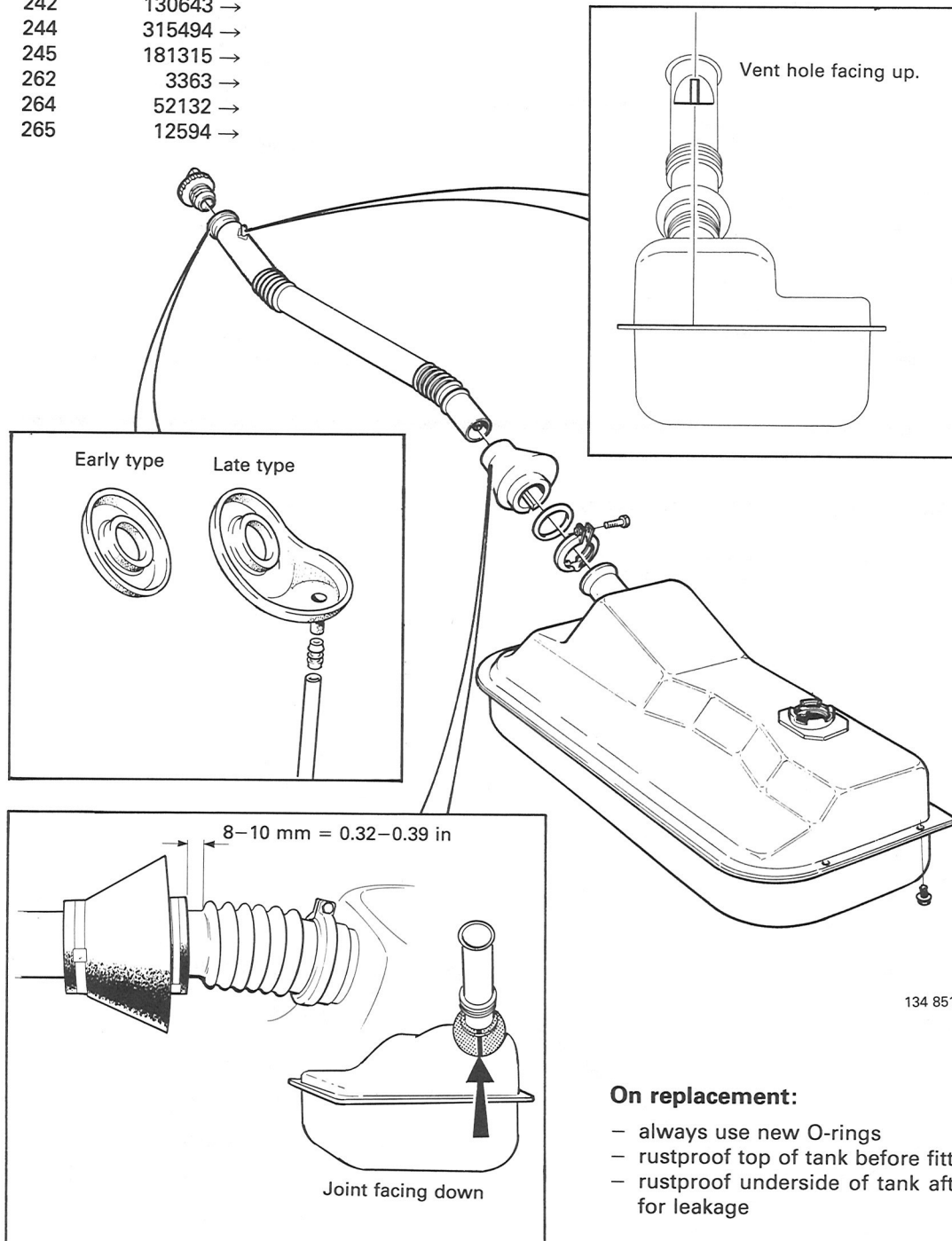
137 778

## Fuel tank, middle of 1978–1984

Operations P 21–22

Model	Chassis No.
242	130643 →
244	315494 →
245	181315 →
262	3363 →
264	52132 →
265	12594 →

P21



P22

### On replacement:

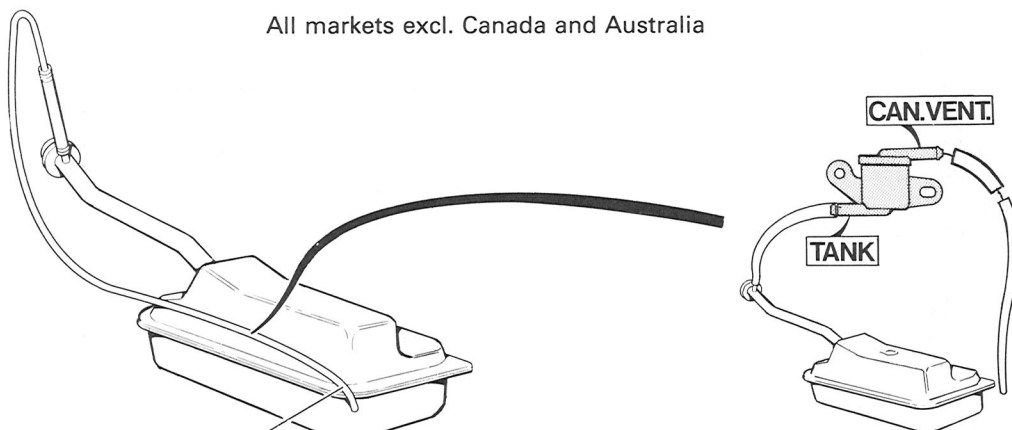
- always use new O-rings
- rustproof top of tank before fitting in vehicle
- rustproof underside of tank afterwards, and check for leakage

## Q. Evaporative system

### Open-type evaporative system

Q1

All markets excl. Canada and Australia

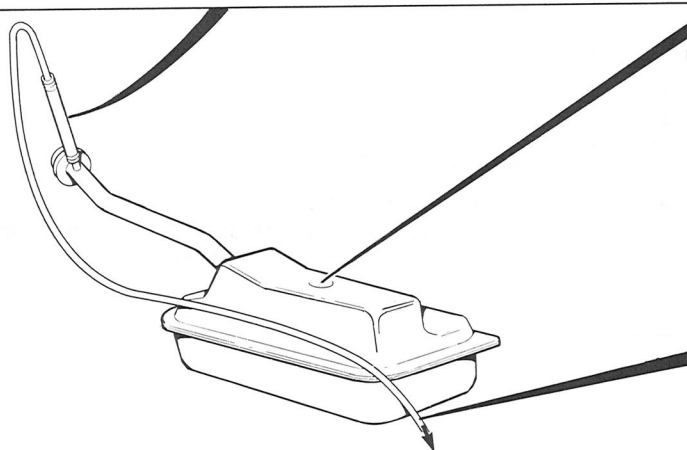
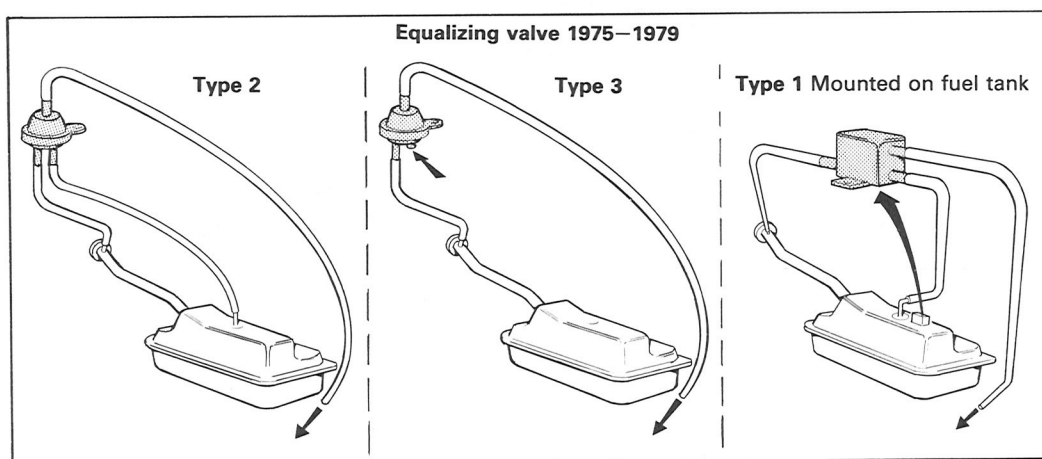


Hose is clamped in different ways depending on model year

**Roll-over valve** 137 780  
Certain year models and markets

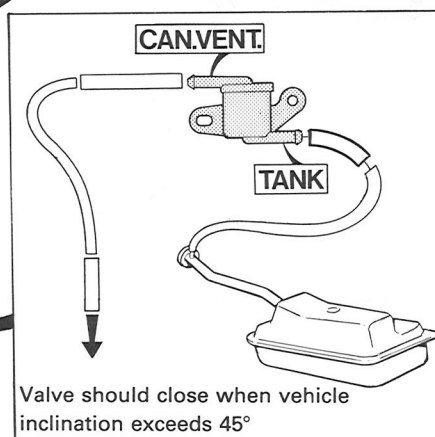
### Closed-type evaporative system, Canada and Australia only

Q2



To charcoal filter  
see next page

Roll-over valve 1980-1984



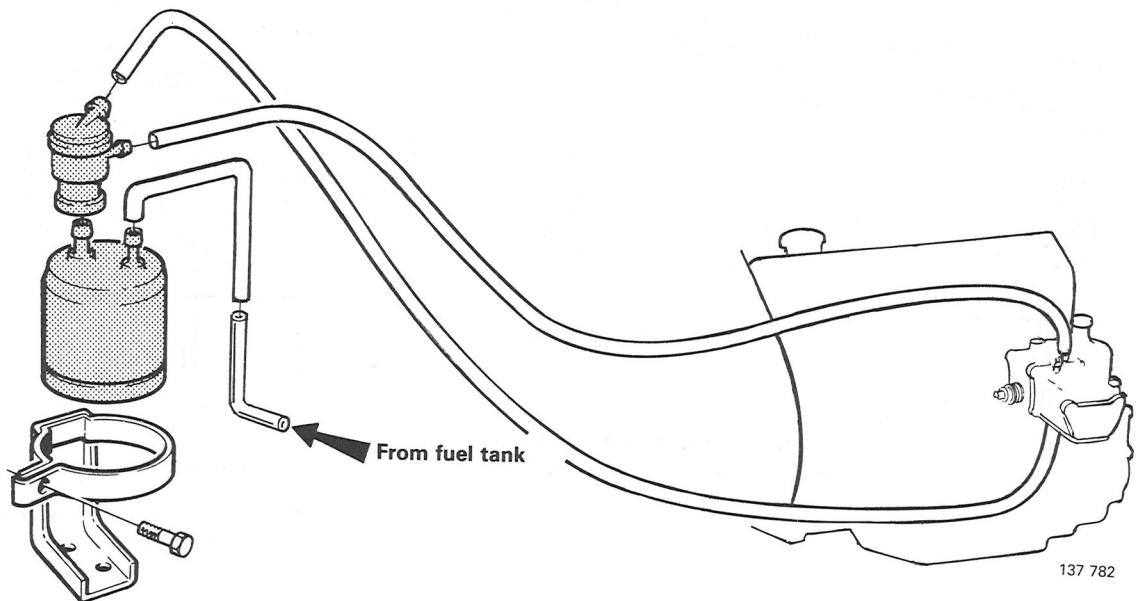
Valve should close when vehicle  
inclination exceeds 45°

137 781



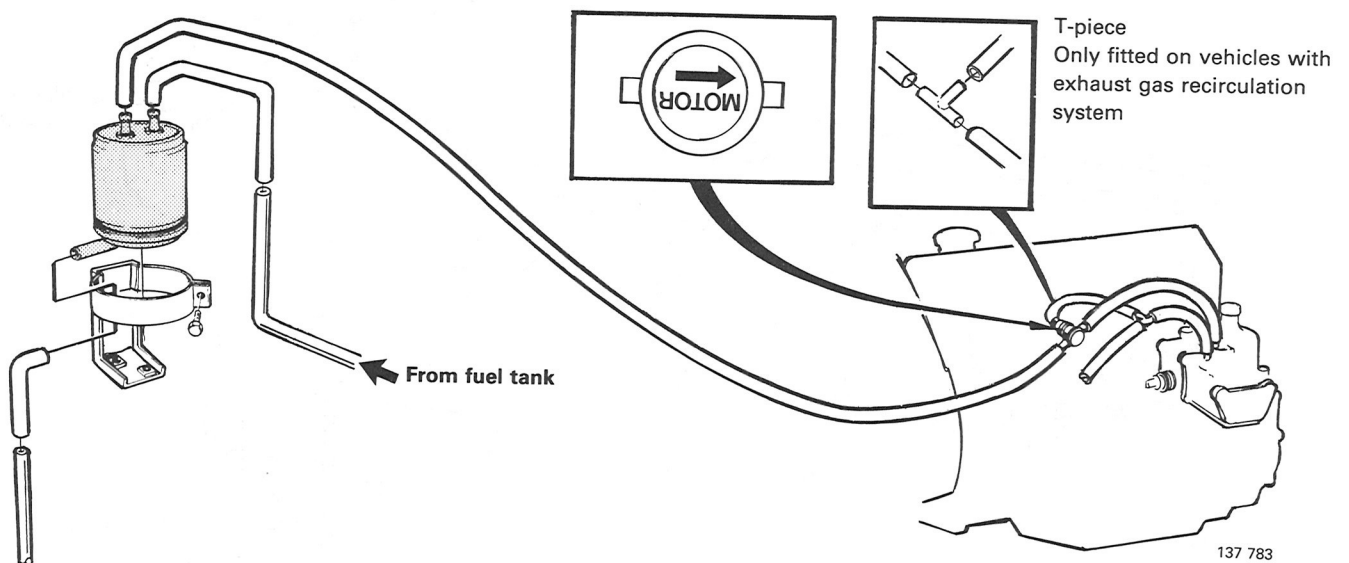
Q3

1975-1977

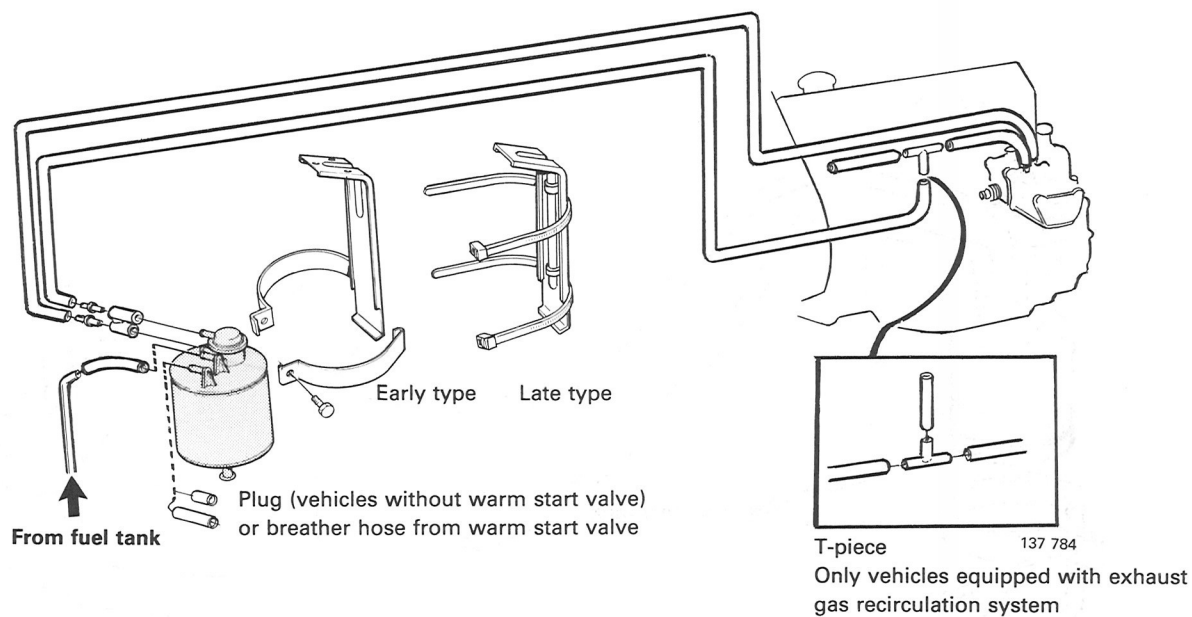


1978-1979

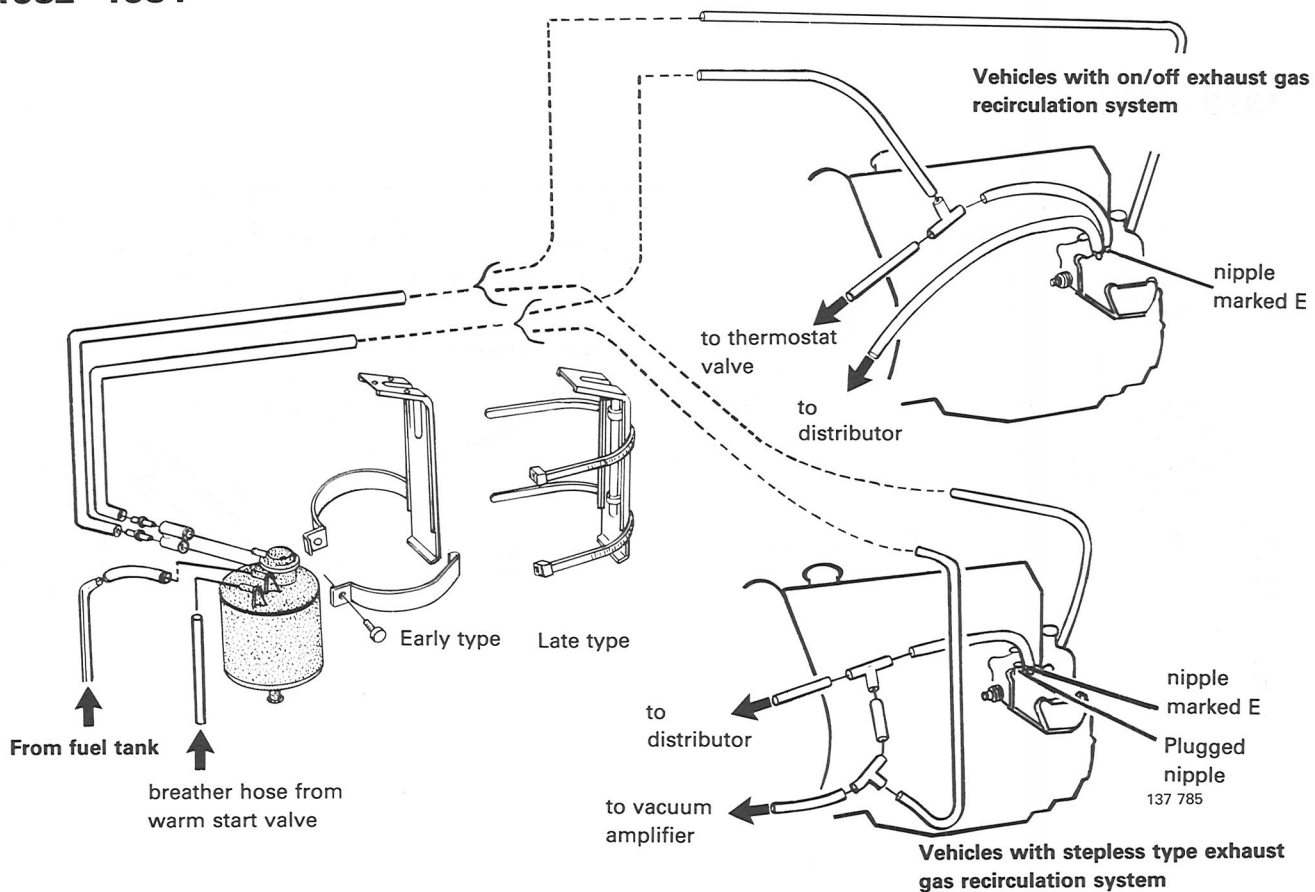
Q4



1980–1981



1982–1984



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damper oil .....	D 42-43	72			
damper piston .....	D 41	71			
diaphragm .....	D 36	70			
fault tracing .....	A 3	16			
float level .....	D 32	69			
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metering needle 1975-1977 .....	C 50	55			
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