

Workshop Manual

Audi 100 1983 ►, Audi 200 1984 ►

Engine Code letters	RS	SH	08.88 ►					

Booklet Keihin II carburetor/
TCI-H ignition system

Edition 07.89



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Removing and installing carburetor and intake manifold

- Checking air cleaner, automatic intake air preheater and temperature control – page 22-5.

- **Always** renew locking plates, seals and gaskets. Renew "O" rings if damaged.

1 – Keihin II carburetor

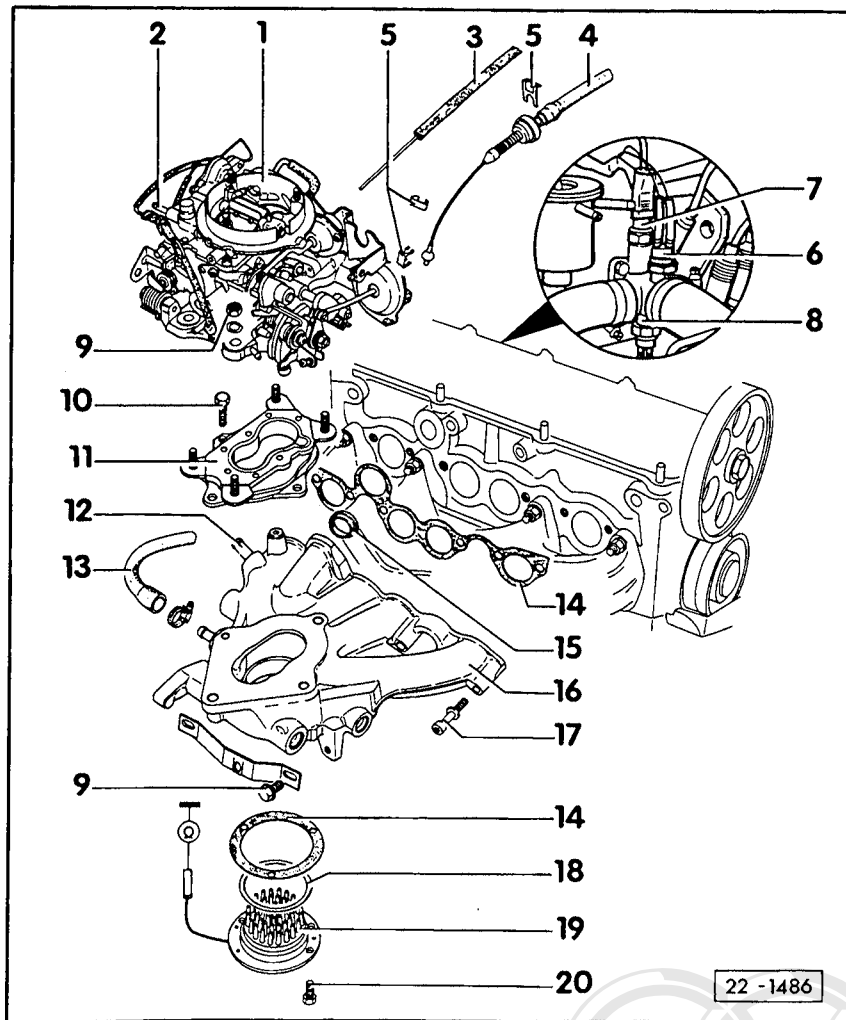
2 – Connection for fuel intake

3 – Choke cable

- Adjusting – page 22-7

4 – Throttle cable

- Adjusting :
Adjust the throttle cable so that the



22-1

throttle valve lever **just** reaches the full-throttle position, by moving the securing clips in the detents on the bracket (carburetor) (max. clearance at throttle valve lever = 1 mm)

5 – Clip

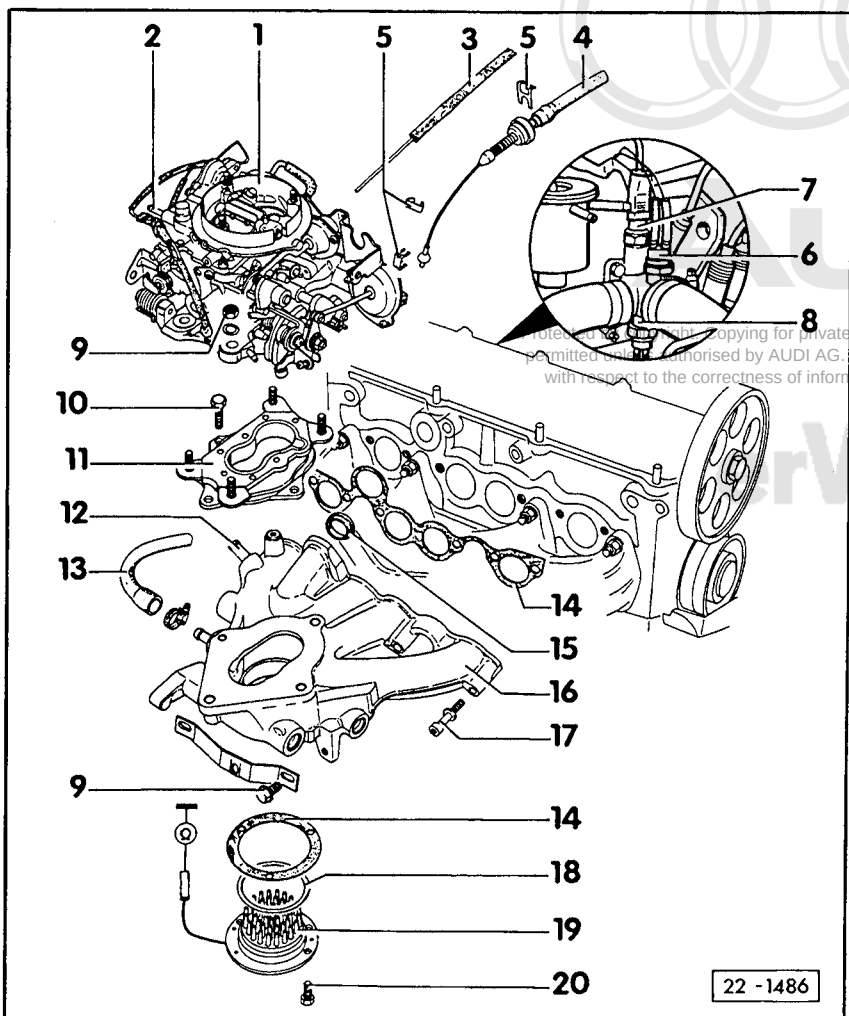
6 – Thermoswitch for intake air preheater

- Switch I (transparent insulation on tab)

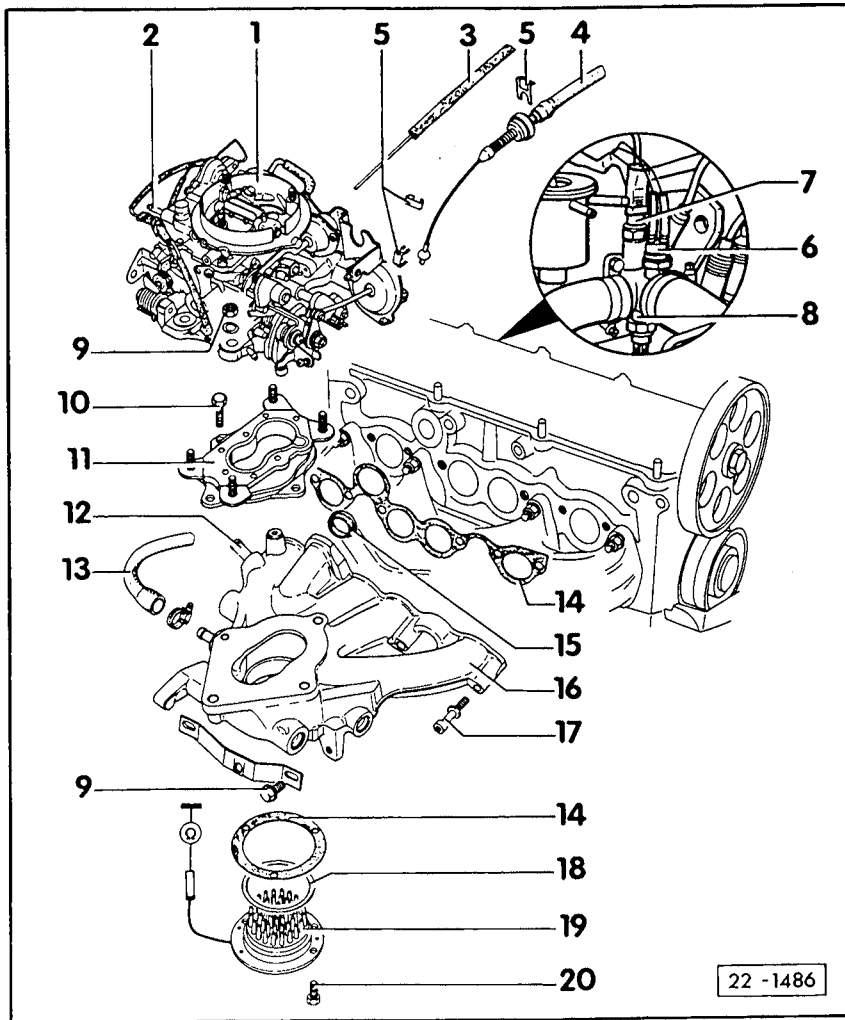
- Use ohmmeter to check continuity.

Specified readings :
below approx. 55° C = 0 Ω
above approx. 65° C = ∞ Ω

7 – Sender for temperature gauge



22-2



8 – Thermoswitch for overrun boost control valve

- Switch II (green insulation on tab)
- Use Ohmmeter to check continuity
Specified readings:
below approx. 60° C
= ∞ Ohms
above approx. 70° C
= 0 Ohms

9 – 20 Nm

10 – 13 Nm

11 – Flange

12 – To brake servo unit

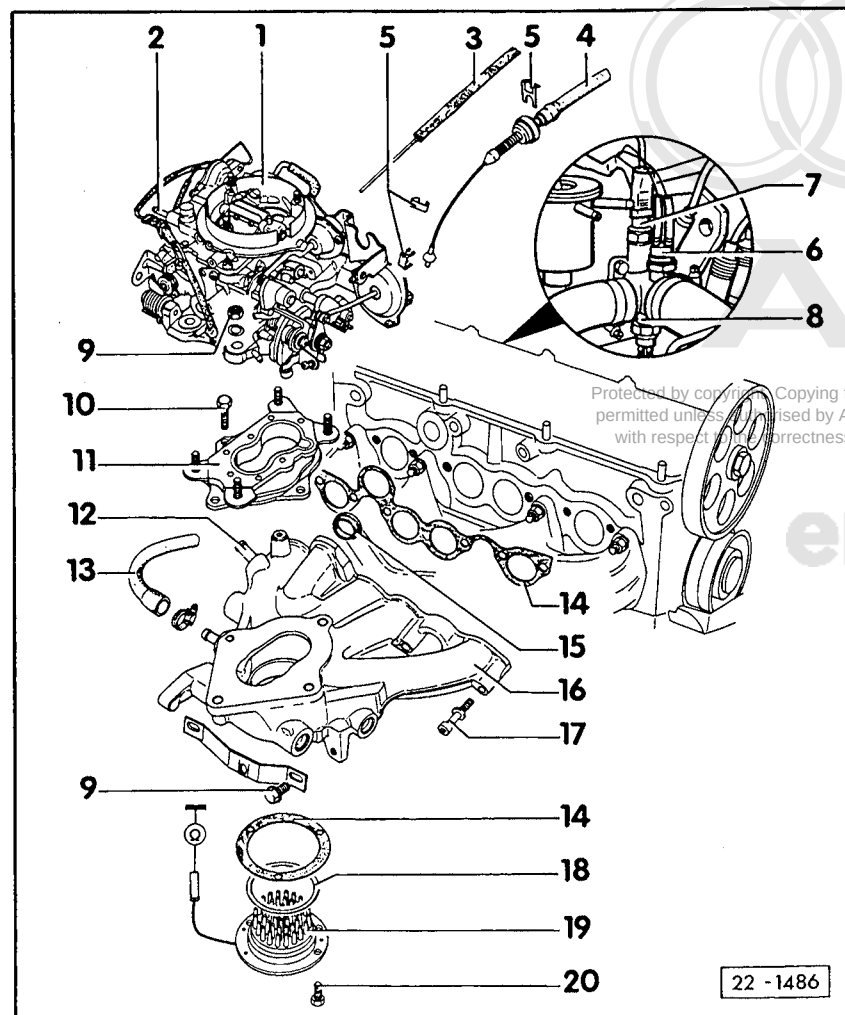
13 – To coolant pipe

14 – Gasket

15 – Sealing ring

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22-3



16 – Intake manifold

17 – 25 Nm

18 – O-ring

19 – Intake air preheater

- Test conditions:
Engine cold
Measure resistance
Specified resistance:
0.25 – 0.50 Ω

20 – 10 Nm

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Air cleaner

The air cleaner is equipped with a load and temperature-dependent intake air preheater.

Note :

The brass or plastic connection (with notch) on the temperature regulator must be connected to the vacuum unit.

Checking automatic intake air preheater

- Disconnect hose from brass or plastic connection (with notch) of temperature regulator and check the operation of the flap by suction. The flap must close or open audibly. If not :
 - Check vacuum hoses.
 - Check regulator flap of vacuum unit for ease of operation.
 - Check temperature regulator.

22-5

Checking temperature regulator

- Intake connection OK.
- Intake air temperature = max. 20° C
- Remove air cleaner and place near vehicle.
- Using a suitably long piece of vacuum hose, connect the temperature regulator to the carburetor again.
- Start engine and run at idling speed.

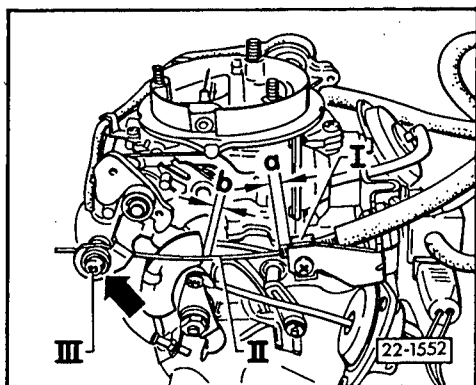
The control flap must be pulled open (engine draws in preheated air).

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- Disconnect vacuum hose between regulator and carburetor at the carburetor end.
- The regulator flap must return to its rest position in max. 20 seconds.

22-6

Adjusting choke cable



- Push choke cable to stop (instrument panel).
- Use clamp (I) to secure choke cable with projection "a" = approx. 10 mm.
- Press choke valve lever in direction of arrow (choke valve fully open), use clamp (III) to secure operating cable II at choke valve lever.
- Check whether the choke cable on the carburetor can be opened fully to stop.
- Push choke knob in until it reaches stop (instrument panel). Choke valve must be fully open.
- When the choke valve is fully open, there must be a gap (b) between the throttle valve operating lever and the throttle valve lever stop.

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Servicing Keihin II carburetor

Carburetor top part

Carburetor adjustment data
– Page 22-17

Carburetor jets
– Page 22-18

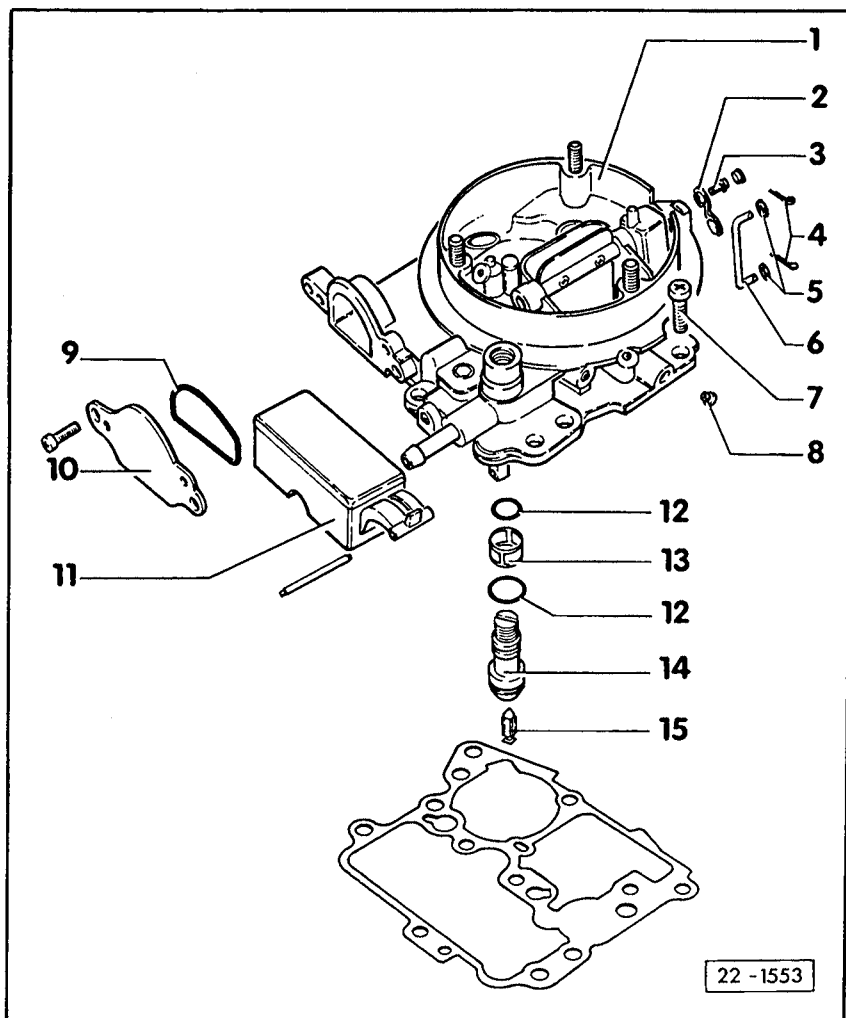
Carburetor jet arrangement
– Figs. 1 + 2 – Page 22-19

Adjusting cold idling speed
– Page 22-23

Adjusting choke valve gap
– Page 22-25

Basic adjustment of throttle valve
stage II – Page 22-29

Vacuum connections
– Page 22-47



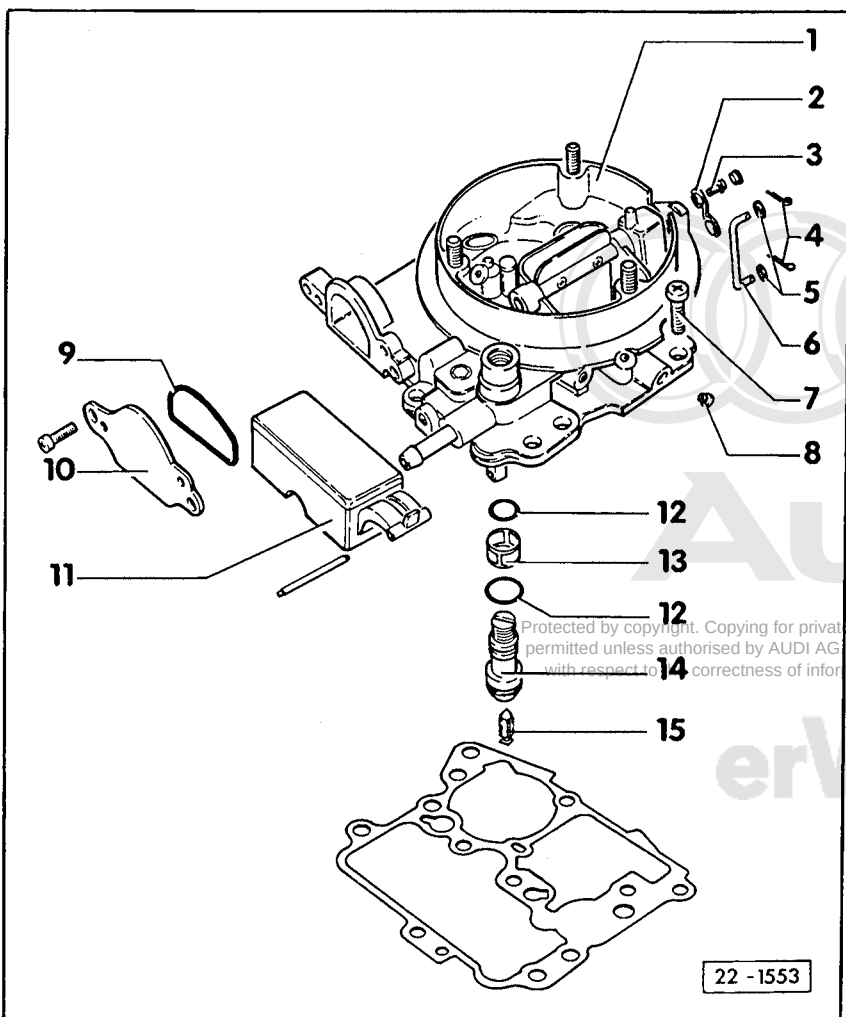
22 - 1553

22-9

Notes :

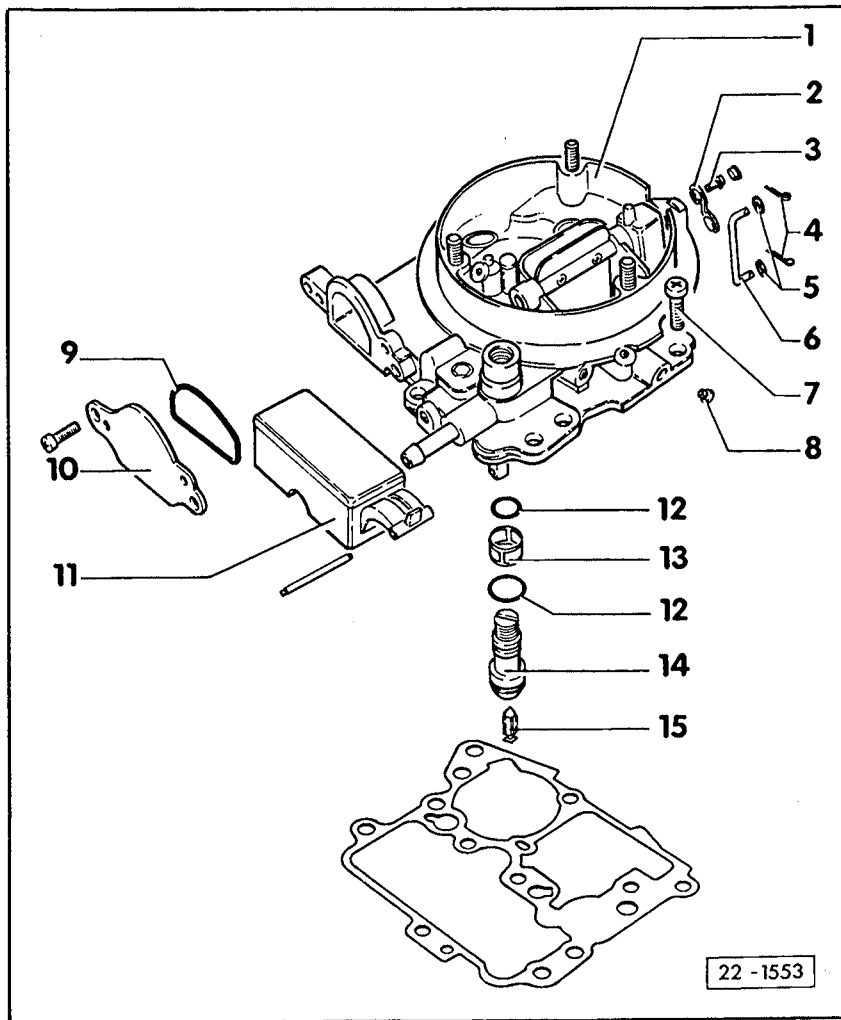
- Adjusting screws are sealed with caps, plugs or sealing paint so that further adjustment is not possible without destroying the seals. After repairs or adjustment renew seals.
- After repair has been carried out, renew lock plates and seals, and renew O-rings if damaged.
- Use MoS₂ grease to lubricate all joints on the carburetor.
- Except for the air correction jet – Fig. 1, item 2 – and the idling system emulsion tube – Fig. 2, item 7 – all the jets are pressed in.

1 – Carburetor, upper part



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22-10



2 – Choke valve lever

3 – Screw

4 – Cotter pin

5 – Washer

6 – Connecting rod

7 – 5 Nm

- Tighten evenly
- Lock with D6

8 – Air correction jet

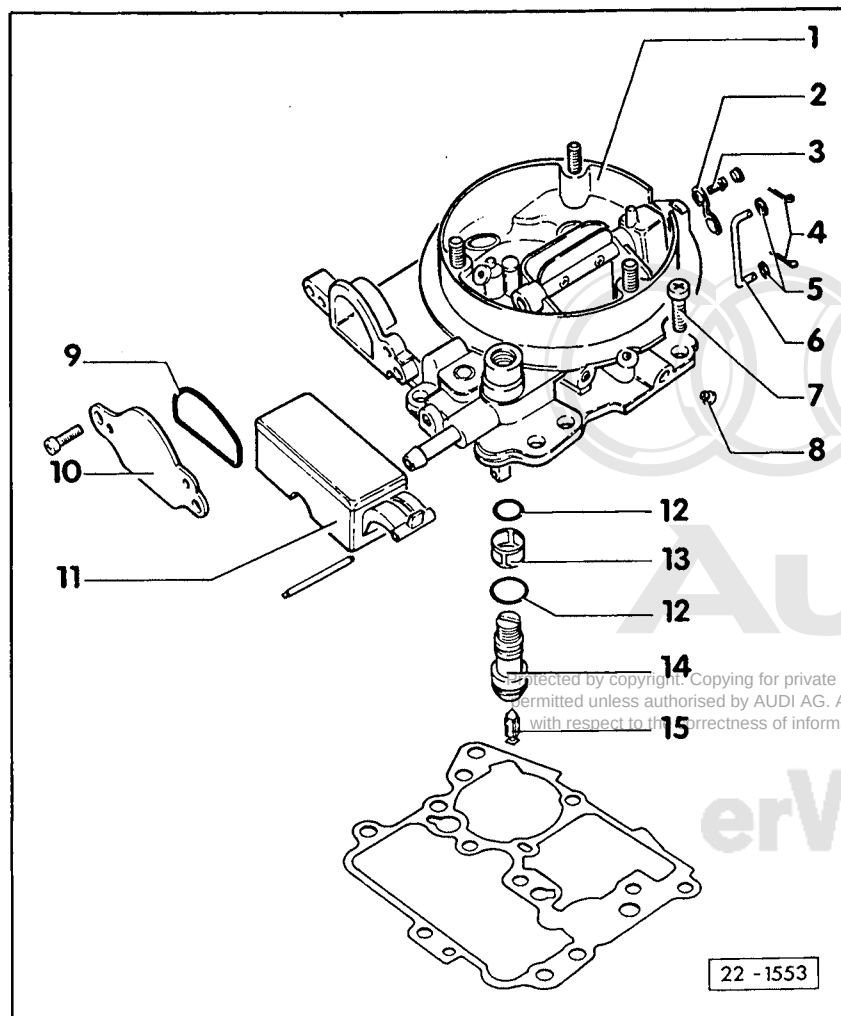
9 – Gasket

10 – Cover

11 – Float

- Checking and adjusting float level
– Page 22-34

22-11



12 – O-ring

13 – Strainer

14 – Float needle seat

- Secure with locking fluid

- Checking and adjusting float level
– page 22-34

15 – Float needle

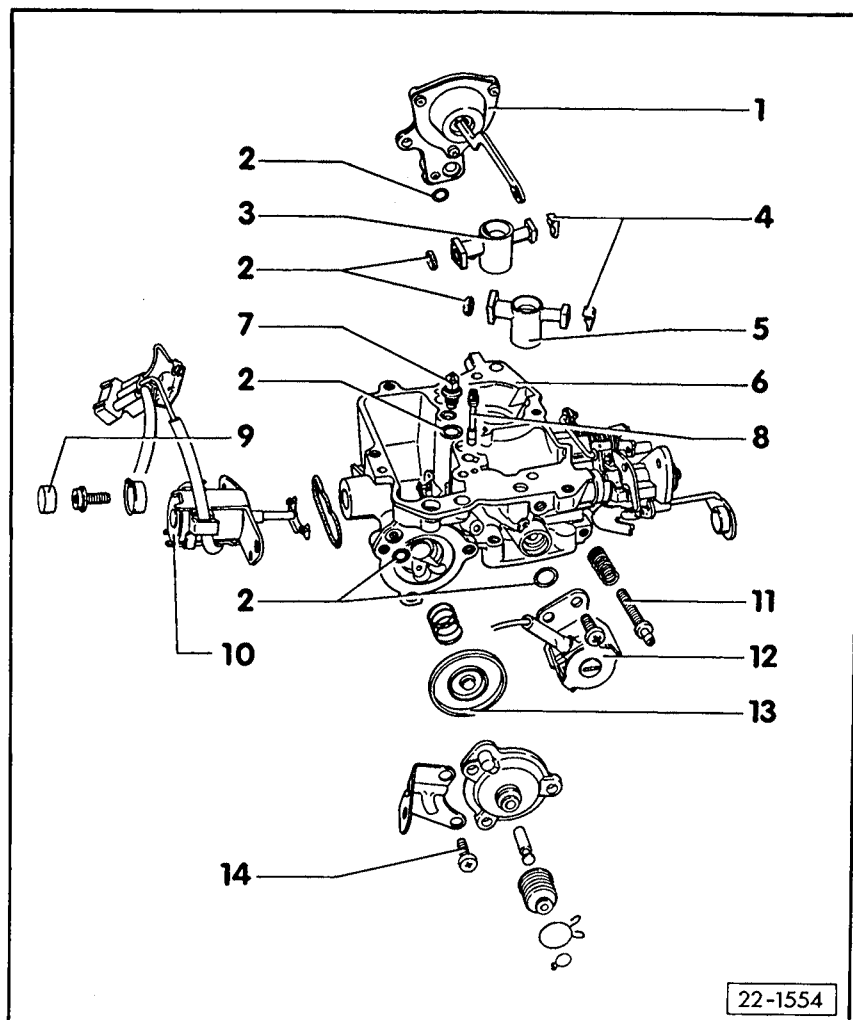
- Attach to float before installation

22-12

Carburetor – Lower part

Attention

Do **not** interchange atomisers for 1st and 2nd stages.



22-1554

22-13

1 – Pulldown unit

- Checking – page 22-25

2 – O-ring

3 – Stage II atomizer

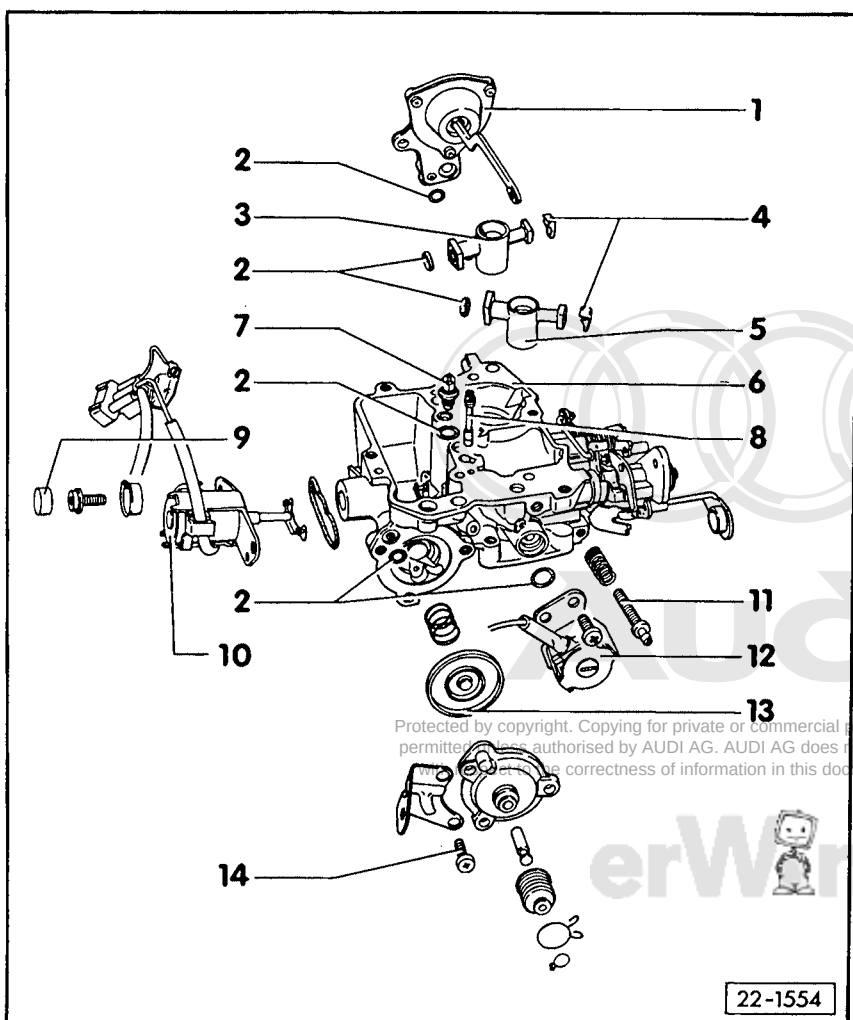
4 – Securing clip

5 – Stage I atomizer

6 – Carburetor, lower part

7 – Enrichment valve

8 – Idling system emulsion tube



22-1554

9 – Cap

- Destroy to remove solenoid

10 – Solenoid for main jet cut-off

- Checking: Must click when switching ignition on/off

11 – Idling speed adjustment screw

- Checking and adjusting idling speed – page 22-20

12 – Idling speed cut-off valve

- Checking: Must click when switching ignition on/off

13 – Diaphragm

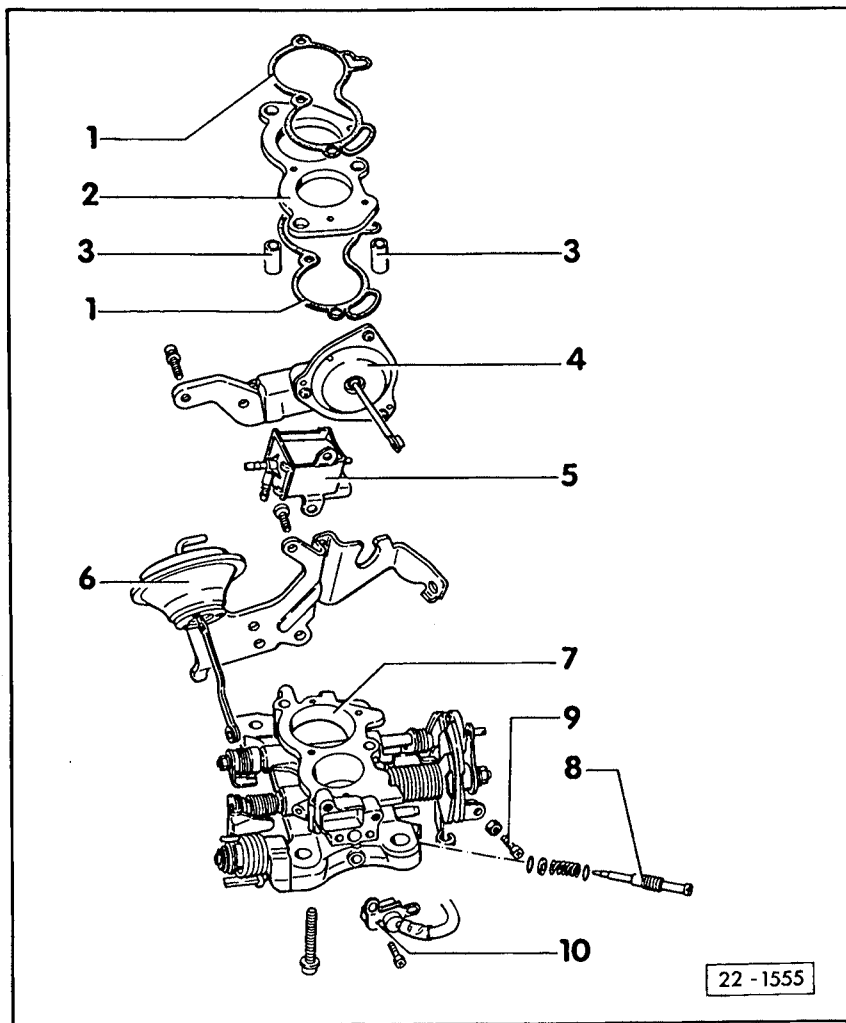
- For accelerator pump

14 – Screw

- Lock with D6

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Throttle valve part

1 – Gasket

2 – Intermediate flange

3 – Sleeve

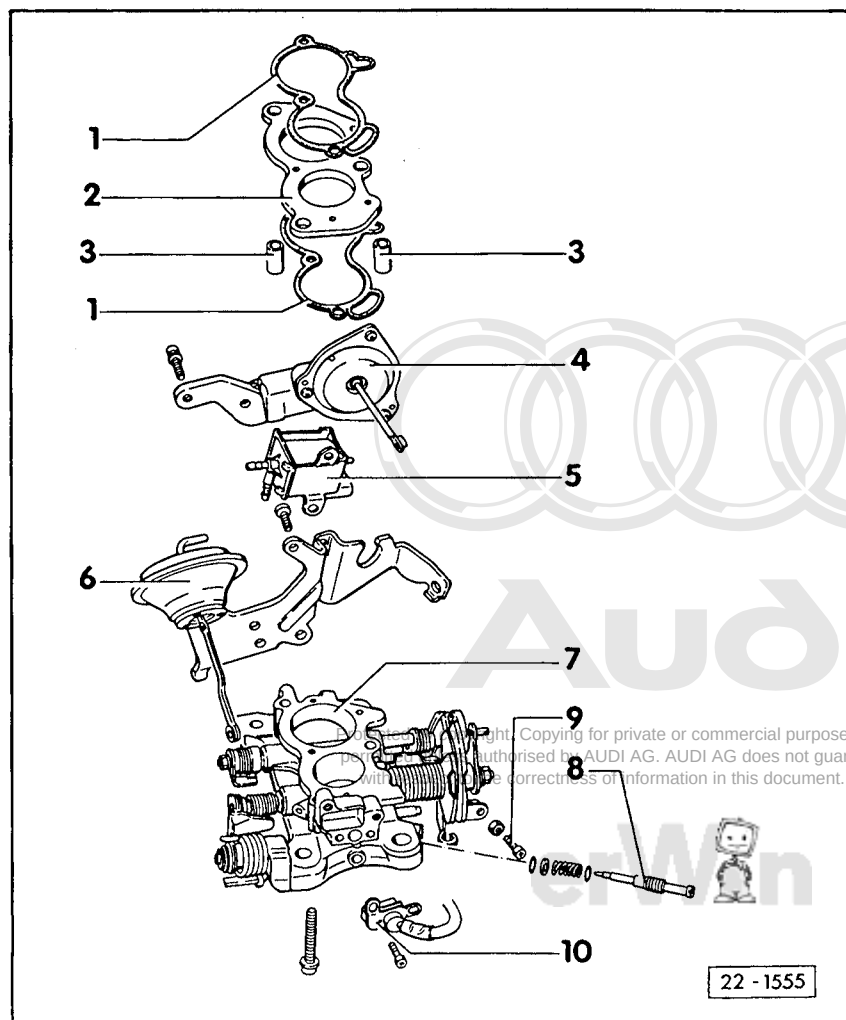
4 – Throttle valve positioner

- For overrun boost (manual gearbox only), checking and adjusting – page 22-37
- For idling speed boost (automatic gearbox only), checking and adjusting – page 22-42

5 – Control valve

- For overrun boost (manual gearbox only) checking – page 22-40
- For idling speed boost (automatic gearbox only), checking – page 22-45

22-15



6 – Vacuum unit

- For Stage II

7 – Throttle valve part

8 – CO adjustment screw

- Adjusting CO content – page 22-20

9 – Adjustment screw

- For overrun boost (manual gearbox only), checking and adjusting – page 22-36
- For idling speed boost (automatic gearbox only), checking and adjusting – page 22-42

10 – Part throttle channel heating

- Checking – page 22-35

22-16

Carburetor adjustment data

Code letters		RS	SH
Engine		1.8 ltr. – 55 kW	1.8 ltr. – 66 kW
Introduced	from	10.86	08.88
Carburetor			
Type		Keihin II (EF)	Keihin II (EF)
Part No.:			
Manual gearbox		026 129 017 B	026 129 017 S
Automatic gearbox		—	026 129 017 T
Cold idling speed	rpm	3500 ± 200	
Injection quantity	cm ³ /stroke	0.85 ± 0.15	
Choke valve gap	mm	2.2 ± 0.15	
Idling speed adjustment ¹⁾			
Speed	rpm	750 ± 50	900 ± 50
CO content ²⁾	Vol. %	1.0 – 0.5 ²⁾	1.0 – 0.5

¹⁾ Note checking and adjustment conditions – page 22-20

²⁾ On vehicles with catalyst, measure CO content at CO measuring pipe in engine compartment. When doing this, the hose for the adapter – V.A.G 1363/3 – must fit tightly on the CO measuring pipe to prevent exhaust leaks.

22-17

Carburetor jets

Code letters		RS	SH
Engine		1.8 ltr. – 55 kW	1.8 ltr. – 66 kW
Introduced	from	10.86	08.88
Carburetor			
Type		Keihin II (EF)	Keihin II (EF)
Part No.:			
Manual gearbox		026 129 017 B	026 129 017 S
Automatic gearbox		—	026 129 017 T
Carburetor jets	Stage	I	II
Venturi	mm diam.	22	26
Main jet		100 ¹⁾	140 ¹⁾
Air correction jet		90 (105)	100 ¹⁾
Idling fuel jet		50	80 ¹⁾
Idling air jet		100 ¹⁾	150 ¹⁾
Float needle valve	mm diam.	2.5	2.5
Discharge pipe		40	40
Enrichment		35	35

¹⁾ Pressed-in jets

22-18

Jet arrangement

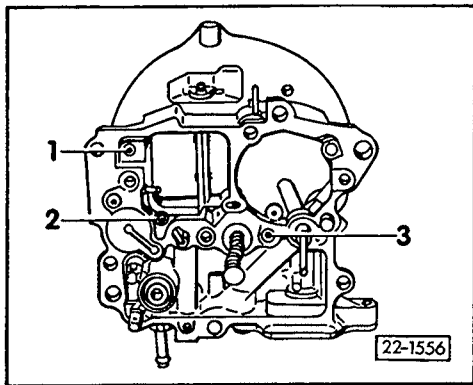


Fig. 1 Jet arrangement in carburetor, upper part

- 1 – First idling air jet
- 2 – Air correction jet, Stage I
- 3 – Air correction jet, Stage II

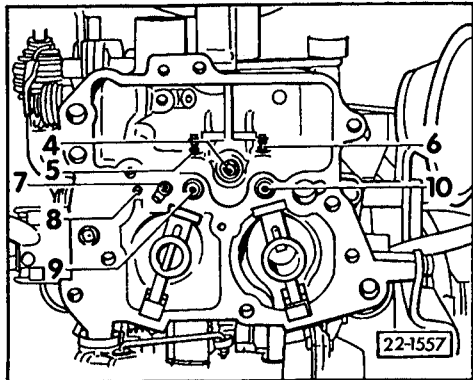


Fig. 2 Jet arrangement in carburetor, lower part

- 4 – Enrichment valve
- 5 – Main jet, Stage I
- 6 – Main jet, Stage II
- 7 – Idling system emulsion tube
- 8 – Second idling air jet
- 9 – Emulsion tube, Stage I
- 10 – Emulsion tube, Stage II

22-19

Idling speed adjustment

Checking and adjustment conditions

- Minimum engine oil temperature 60° C.
- Choke knob pushed in fully. (Choke valve fully open.)
- Electrical components switched off. (Radiator fan must **not** be running when checking and/or adjusting).
- Crankcase breather hose pulled off at cylinder head cover and sealed at air cleaner side.
- Ignition timing adjustment OK.

Checking and adjusting idling speed and CO content

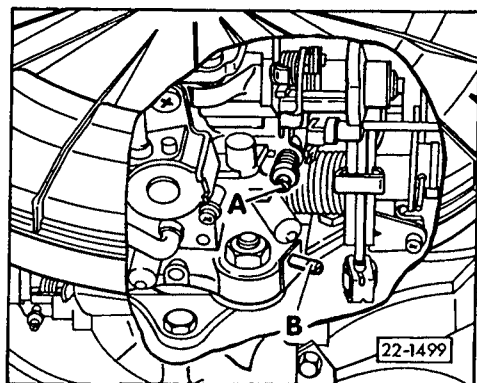
Connect speed and CO tester.

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Notes :

- The ignition must be switched off when the speed tester is connected.
- On vehicles with catalyst, connect CO tester to the CO measuring pipe in engine compartment. Make sure that the adapter hose V.A.G 1363/3 fits tightly on the CO measuring pipe to prevent exhaust gas leaks.



◀ – Check idling speed and CO content.

Specifications :

Engine code letters	Idling speed	CO content Vol. %
RS	750 ± 50	1.0 – 0.5
SH	900 ± 50	

If necessary, adjust to the specified value by alternately turning the adjuster screws, "A" for idling speed and "B" for CO.

22-21

Note:

The crankcase breather hose must be reconnected after the CO content has been adjusted. If this makes the CO content increase, it does not mean that the adjustment is incorrect, but it is due to enrichment from oil dilution in the crankcase resulting from frequent stop/start operation.

A long, fast drive will reduce the amount of fuel in the oil and the CO content will return to the normal level. At short notice this can also be done by an oil change.

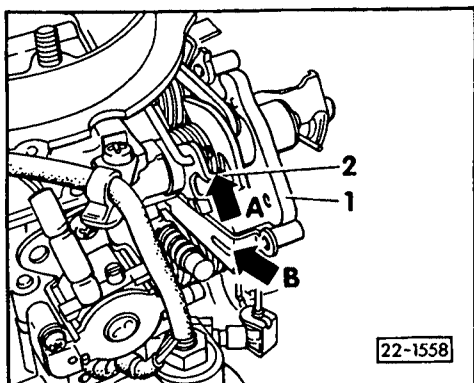
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Checking and adjusting cold idling speed

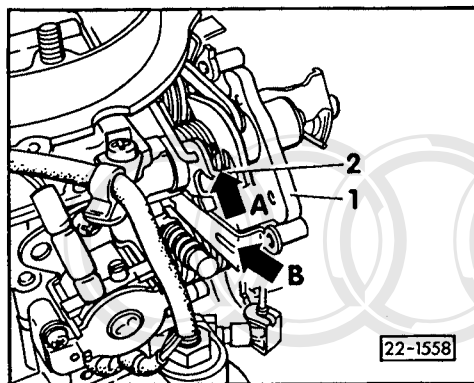
- Minimum engine oil temperature 60° C.
- Ignition timing and idling speed adjustment both OK.

- Connect engine speed tester.
- Remove air cleaner and seal vacuum hose for temperature regulator.



- Pull choke cable out all the way until choke valve lever (1) makes contact with stop.
- Start engine.
- Fully open choke valve at lever (2) (arrow A).

22-23



- Check engine speed and, if necessary, adjust by bending stop lever (arrow B).

Specification : $3200 \pm 200/\text{min}$

Engine speed too high :
Press lever together

Speed too low :
Bend lever apart

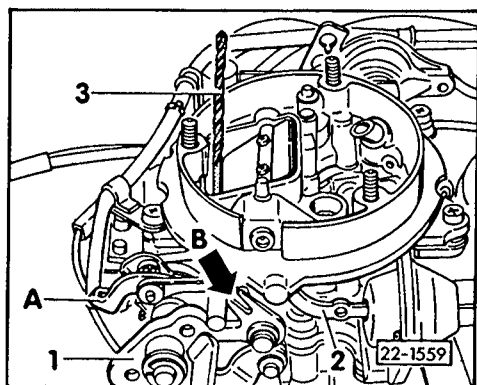
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Checking and adjusting Pulldown unit

a) Choke valve gap



- ◀ – Pull choke out fully. The choke valve lever – 1 – must rest against the stop (choke valve closed).
- Press connecting rod – 2 – on lever – A – in direction of Pulldown unit, as far as the stop.
- In this position, check the choke valve gap between the carburetor housing and the hanging side of choke valve (see Fig.) using a drill shank – 3 –, and if necessary adjust by bending – arrow – the lever – B –.

Specification: $2.2 \text{ mm} \pm 0.15 \text{ mm}$

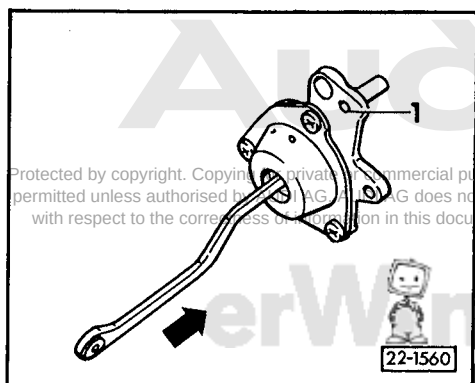
Choke valve gap too large:
Press lever apart

Choke valve gap too small:
Press lever together.

22-25

b) Leaks

- Remove carburetor.
- Remove the three screws of throttle valve positioner or vacuum unit Stage II bracket.
- Remove Pulldown unit.

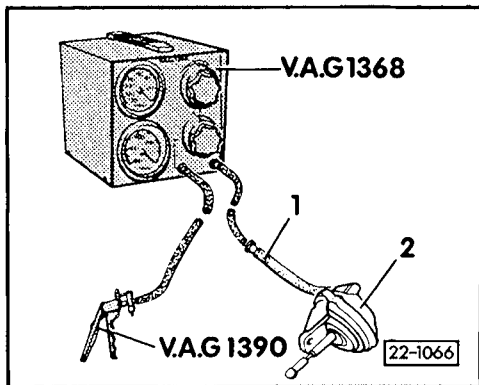


- ◀ – Push connecting rod as far as the stop in Pulldown unit – arrow –.
- Close breather hole – 1 – with thumb pressure and release connecting rod.
- With breather hole tightly sealed, the connecting rod must not move in the opposite direction to the arrow, otherwise renew Pulldown unit.

22-26

Checking function of throttle valve, Stage II

Checking vacuum unit for leaks



- Pull the Stage II vacuum unit – 2 – hose – 1 – off at carburetor and connect vacuum tester and vacuum pump.
- Switch vacuum tester to throughflow.
- Produce a vacuum of approx. 100 mbar with vacuum pump.
- Switch vacuum tester so that the vacuum is held on the vacuum unit side.
- Set vacuum at tester to 50 mbar. The set vacuum must not drop off within two minutes, otherwise renew vacuum unit.

22-27



Checking function

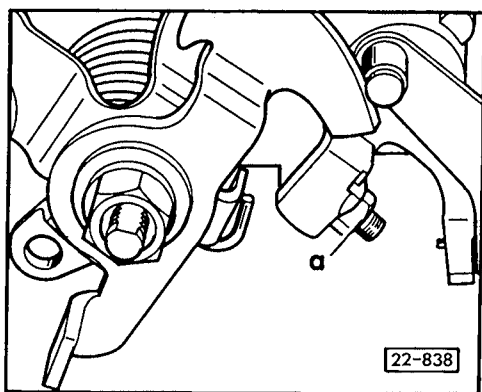
- Leak test OK.
 - Push throttle linkage into full throttle position.
 - Produce a vacuum of 30 mbar with vacuum pump.
- The Stage II throttle valve must be opened fully by the vacuum unit linkage.

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Basic throttle valve setting stage II



◀ The limiting screw (a) is set at the factory and should not be disturbed. If, however, the screw is turned at any time, it should be adjusted as follows:

- Remove carburetor.
- Open throttle valve fully.
- Throttle valve stage I in idling position.
- Unscrew limiting screw (a) until there is a gap between limiting screw (a) and stop.
- Screw limiting screw (a) in until it touches stop.

Note:

To determine the exact point of contact, place a thin piece of paper between the limiting screw and the stop. By continually moving the paper to and fro, and at the same time turning the limiting screw in, the exact point of contact can be determined.

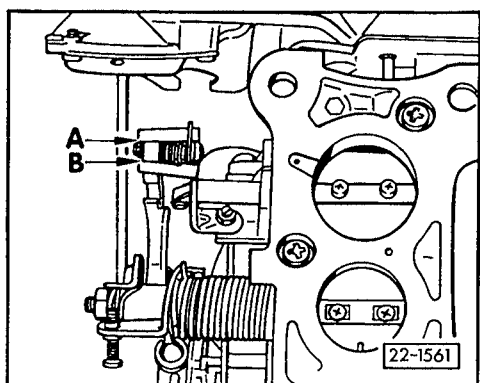
22-29

- From this point, turn the screw 3/4 of a turn further in.
- Lock limiting screw and secure with sealing paint.
- Adjust idling speed and CO content.

Checking and adjusting clearance on locking lever for Stage II

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- Remove carburetor.
- Fully open choke, thereby closing throttle valve (idling position).



- ◀ – Check clearance at locking lever – arrow –, and if necessary adjust by bending the arm.

Specifications:

Arrow A = 0.25 ± 0.05 mm

Arrow B = 0.20 ± 0.05 mm

- Install carburetor, adjust idling speed and CO content.

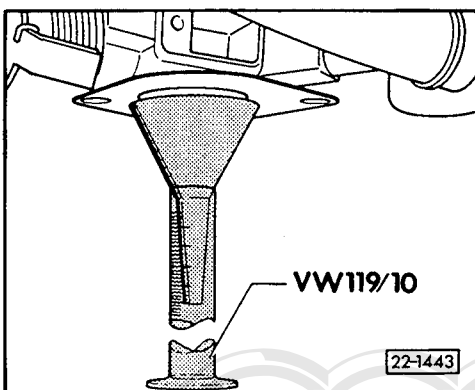
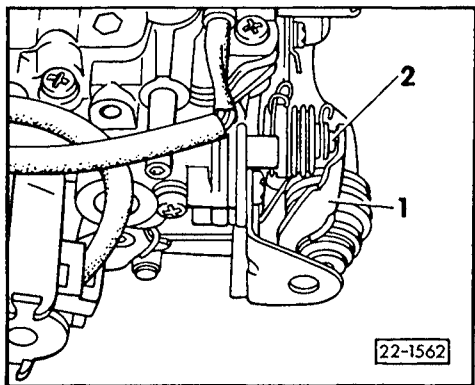
22-30

Checking injection capacity with VW 119/10

(Carburetor off)

Notes :

- The injection capacity is not adjustable.
- ◀ • Lever – 1 – must rest firmly on pump plunger
– 2 – (no clearance permitted).
- Close stage I throttle valve by screwing idling speed screw out.



- ◀ – Hold funnel and glass under carburetor.
- Press choke operating lever in direction of choke open.
- Open throttle lever 10 times **slowly and fully** (minimum 3 secs./stroke).

22-31

- Divide amount of fuel injected by 10 and compare with specification.

Specification :
 $0.85 \pm 0.15 \text{ cm}^3/\text{stroke}$

- Adjust idling speed and CO content.

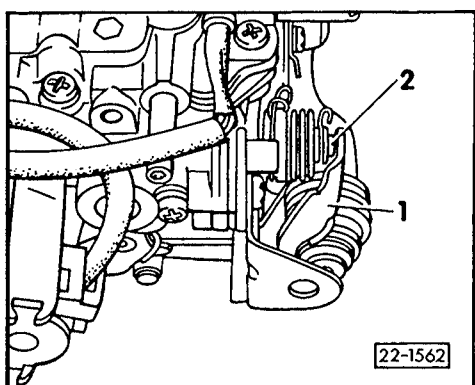
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Checking injection capacity with V.A.G 1388

(Carburetor on)

Notes :

- The injection capacity is not adjustable.
- ◀ • Lever – 1 – must rest firmly on pump plunger
– 2 – (no clearance permitted).
- Connect up tester V.A.G 1388.
- Push choke knob fully in (choke fully open).



22-32

- Close stage **I** throttle valve by screwing idling speed screw out.
- Push choke valve operating lever in direction of choke open.
- Open throttle valve lever 10 times **slowly and fully** (minimum 3 secs./stroke).
- Divide injection capacity by 10 and compare with specification.

Specification :
 $0.85 \pm 0.15 \text{ cm}^3/\text{stroke}$

- Adjust idling speed and CO content.



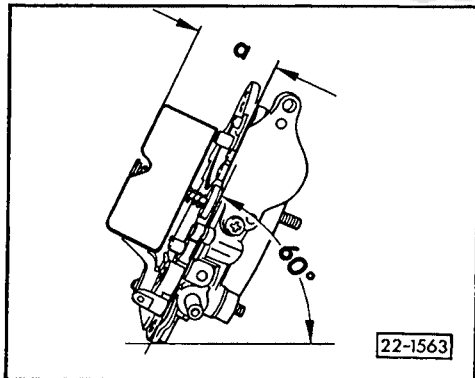
22-33

Checking and adjusting float level

Note :

The float is adjusted at the factory and should not be changed. However, if the setting is altered accidentally or the float needle seat removed, it can be reset as follows :

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- Take top part of carburetor off and hold at an angle of 60°.

Note :

The spring-loaded float needle pin must not be compressed.

- Measure gap "a" between float and housing at point shown with a depth or sliding caliper and adjust as necessary by turning the float needle seat.

Specified value : $a = 36 \pm 1 \text{ mm}$

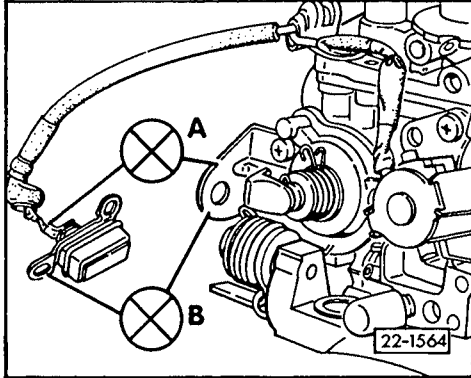
- After adjusting, seal hole in top part of carburetor with a plug.

22-34

Checking part throttle channel heating

To check:

- Unscrew heater element from lower part of carburetor.
- Switch on ignition.



- Connect diode test lamp V.A.G 1527 between yellow/black wire and carburetor housing – A –. Diode must light up (voltage supply OK).

Diode does not light up – locate break in wiring using CFD.

- Connect V.A.G 1527 between heater element and carburetor housing – B –. Diode must light up (heater element OK).

22-35

Checking overrun boost

(Only vehicles with manual gearbox)

- Minimum oil temperature 80° C.
- Choke fully open.

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Connect engine speed tester

- Start engine, increase speed to 4000 rpm and then release throttle valve lever. The speed should drop slowly to approx. 1800 rpm, pause slightly and then drop quickly to idling speed. Otherwise the following functions or component adjustments should be checked:

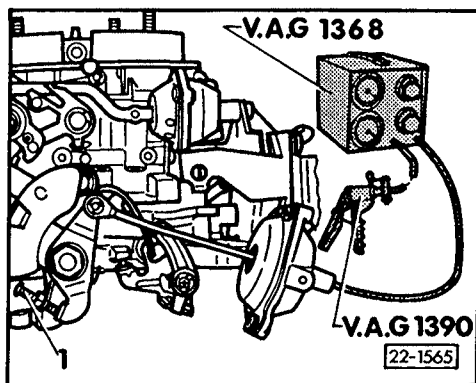
- Throttle valve positioner
- Voltage for control valve (control unit)
- Control valve

22-36

Checking and adjusting throttle valve positioner

(includes checking vacuum unit for leaks)

- Minimum engine oil temperature 60° C.
- Choke fully open (choke knob pushed fully in).
- Ignition timing and idling adjustment OK.
- Connect engine speed tester.



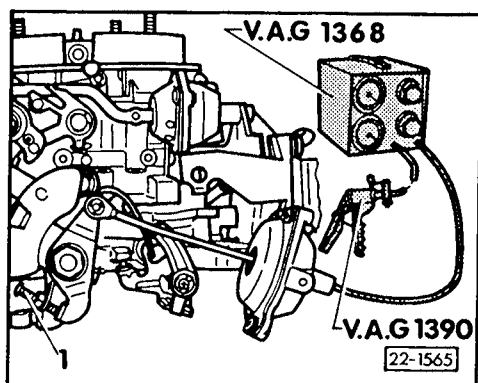
- ◀ – Connect vacuum tester and vacuum pump to vacuum unit.
- Switch vacuum unit to throughflow.
- Build up a vacuum of approx. 400 mbar with pump.

The throttle valve positioner must open the throttle valve slightly, otherwise check vacuum unit for leaks as follows :

22-37

- Switch vacuum tester so that vacuum is held on the vacuum unit side.
- Adjust vacuum on tester to 350 mbar, this reading must not drop more than 10 % within 1 minute. Otherwise the vacuum unit or the hose is leaking.

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- ◀ – Start engine and check speed. If necessary, adjust with screw (1).

Specified reading:
1200 ± 50/min

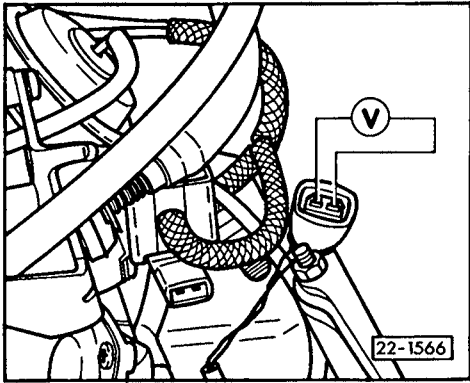
- Lock adjuster screw (1) and secure with sealing paint.

Checking voltage supply at overrun boost control valve

(includes testing control unit)

- Minimum engine oil temperature 60° C.
- Choke fully open (choke knob pushed fully in).
- Connect engine speed tester.

22-38



- ◀ – Pull connector off control valve and attach voltage tester to both contacts in connector.

Note:

To prevent destruction of the control unit, the tester must be switched to voltage measuring range before connecting the test wires (e.g. press V button).

- Start engine and run at idling speed. The tester should indicate approx. battery voltage, otherwise proceed with test as follows:

- Connect tester between contact "positive" (black wire) and battery "negative" (–). The tester must indicate approx. battery voltage, otherwise locate break with current flow diagram and eliminate.
- Connect tester between contact "negative" (brown/red wire) and battery "positive" (+). The tester must indicate approx. battery voltage, otherwise check control unit or locate break in wiring with current flow diagram and eliminate.

22-39

- Increase or decrease speed slowly and find switching speed of control unit:

Specification for increasing engine speed:

Above 1900/min =
Tester shows no reading.

Specification for decreasing engine speed:

Below 1750/min =
Tester must indicate approx. battery voltage.

If the speeds are not correct, renew control unit.

Checking control valve

- Voltage supply OK.
- Minimum engine oil temperature: 60° C.
- Remove air cleaner.
- Switch on ignition.
- Pull connector off control valve.

- Pull vacuum hose (control valve/vacuum unit) off the vacuum unit.
- Take breather cap off control valve and fit extension hose to control valve connection.
- Blow into vacuum hose (extension hose). The valve must be blocked, otherwise it is defective (renew) or hose is leaking.
- Push connector onto control valve and at the same time blow into the extension hose. The valve must click audibly and open up, otherwise valve is defective (renew) or vacuum connections/hoses are blocked.

Note :

If one blows into the valve from the vacuum unit side, the valve must be open with and without voltage, otherwise valve is defective (renew).

22-41

Idling speed boost

Vehicles with automatic gearbox have a Keihin II carburetor fitted with a throttle valve positioner for increasing the idling speed. This ensures that the idling speed does not drop below 850 rpm after a driving range is selected.

This fitment consists of the following parts :

- Keihin II carburetor with throttle valve positioner (vacuum unit with connecting rod to throttle valve)

- Control valve for idling speed boost.

Checking and adjusting idling speed boost

(automatic gearbox only)

- Minimum engine oil temperature 60° C.
- Choke valve fully open (choke knob fully in).
- Ignition timing and idling speed adjustment OK.

- Connect up engine speed tester.
- Pull handbrake on firmly.

Attention

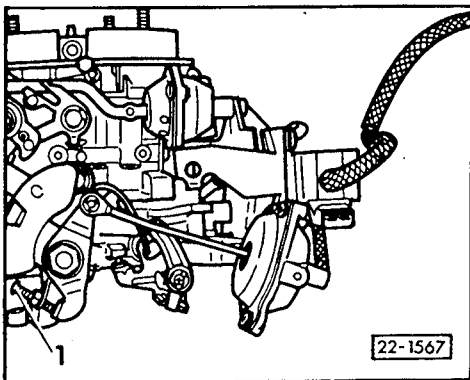
For safety reasons ensure that nobody is in front of, or behind the vehicle during this test.

- Start engine and run at idling speed.
- Switch on heated rear window, main beam headlights and fresh air blower to maximum speed.
- Depress footbrake.
- Select driving range.

The throttle valve positioner should open the throttle slightly, otherwise the following functions and/or components must be checked :

- Vacuum unit (for leaks)
- Control valve

22-43

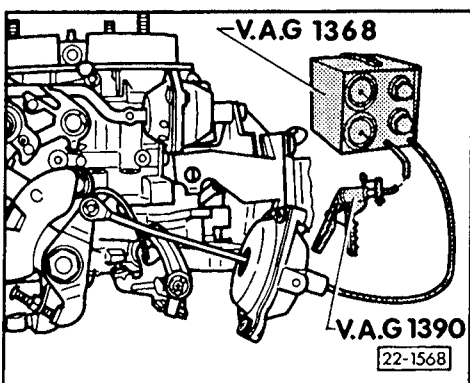


- ◀ – Check, and if necessary, adjust the idling speed at the adjustment screw – 1 –.

Specification : min 850 rpm

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Checking vacuum unit for leaks

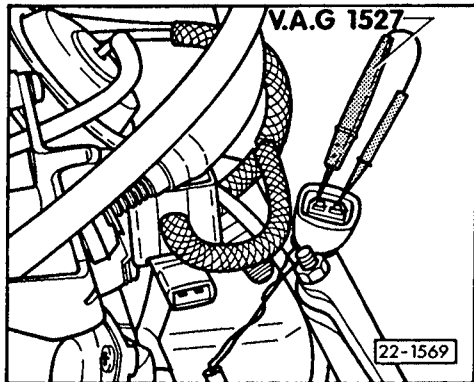


- ◀ – Connect vacuum tester and pump to vacuum unit.
- Switch tester to throughflow.
- Produce a vacuum of approx 400 mbar with the vacuum pump.
- Switch tester so that the vacuum is maintained on the vacuum unit side.
- Adjust vacuum on tester to 350 mbar.

22-44

The vacuum must not drop off more than 10 % in 1 minute. If it does, then the vacuum unit and/or the hose is leaking.

Checking control valve



- ◀ – Pull connector off control valve and attach diode test lamp V.A.G 1527 to both plug contacts.
- Switch on ignition and push selector lever into “N” position.

The diode must light up. If it does not, locate open circuit using current flow diagram and eliminate.

Note :

If “R, D, 2 or 1” is selected, the diode must go out.

- Pull vacuum hose off vacuum unit.
- Pull breather cap off control valve, and push a piece of hose onto control valve connection.

22-45

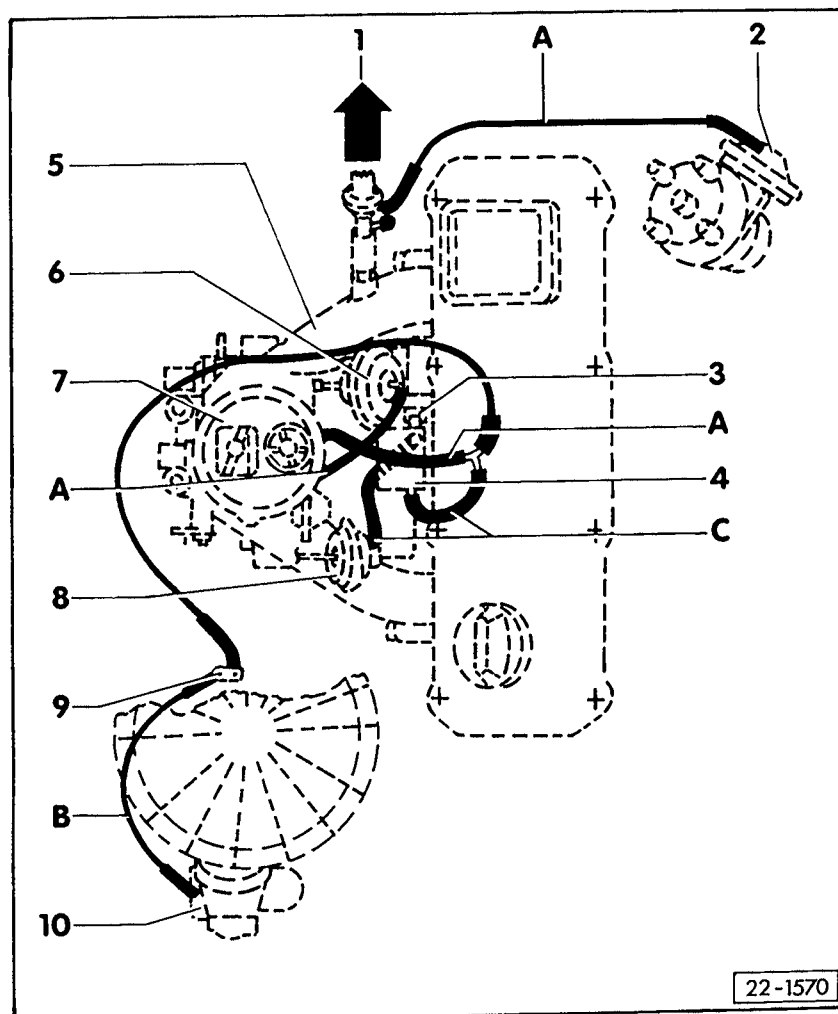
- Blow into hose.
The valve must have no throughflow, otherwise it is defective (renew) or the hose is leaking.
- Push connector onto control valve and at the same time blow into hose. The valve must click audibly and the throughflow must open, otherwise control valve is defective (renew) and/or vacuum connections/hoses are leaking.

Note :

If one blows through the valve from the vacuum unit side the valve must be open, with or without voltage supply, otherwise valve is defective (renew).

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Vacuum connections

Vacuum connections	Colour
A	black
B	transparent
C	brown

1 – To brake servo unit

2 – Advance vacuum unit

3 – Breather cap

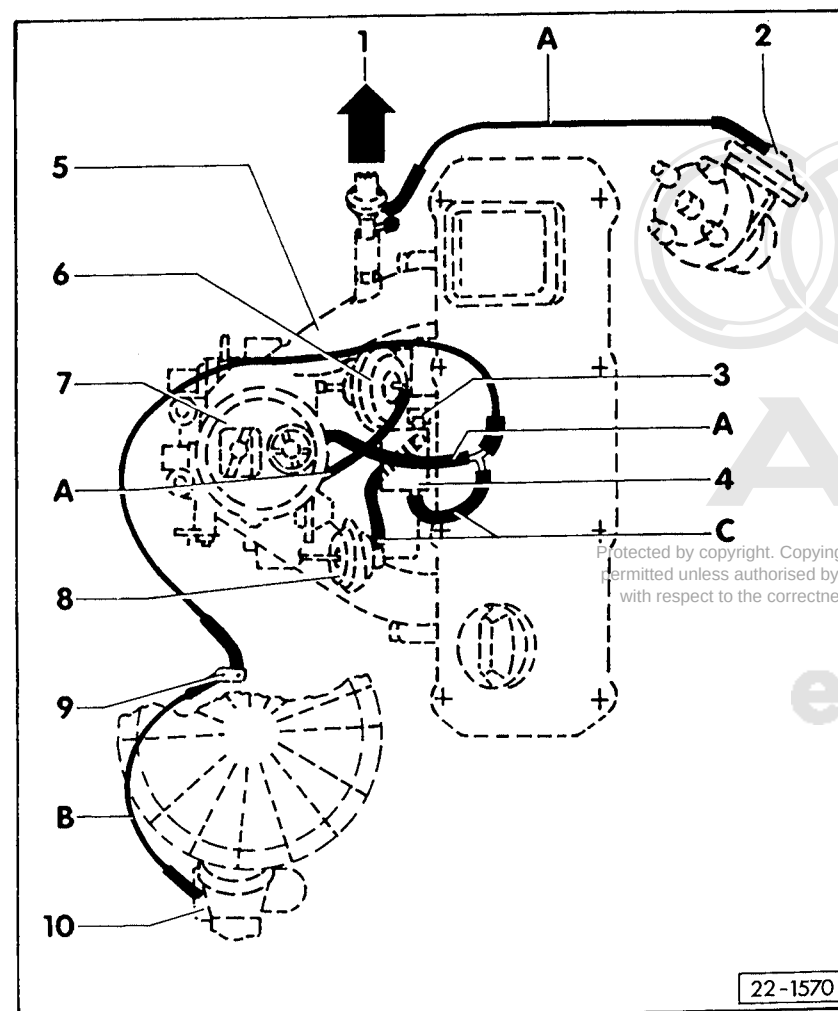
4 – Control valve

- For overrun boost with manual gearbox
- For idling speed boost with automatic gearbox

5 – Intake manifold

6 – Stage II vacuum unit

22-47



7 – Keihin II carburetor

8 – Vacuum unit

- For overrun boost with manual gearbox
- For idling speed boost with automatic gearbox

9 – Temperature regulator

10 – Regulating box

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22-1570

22-48

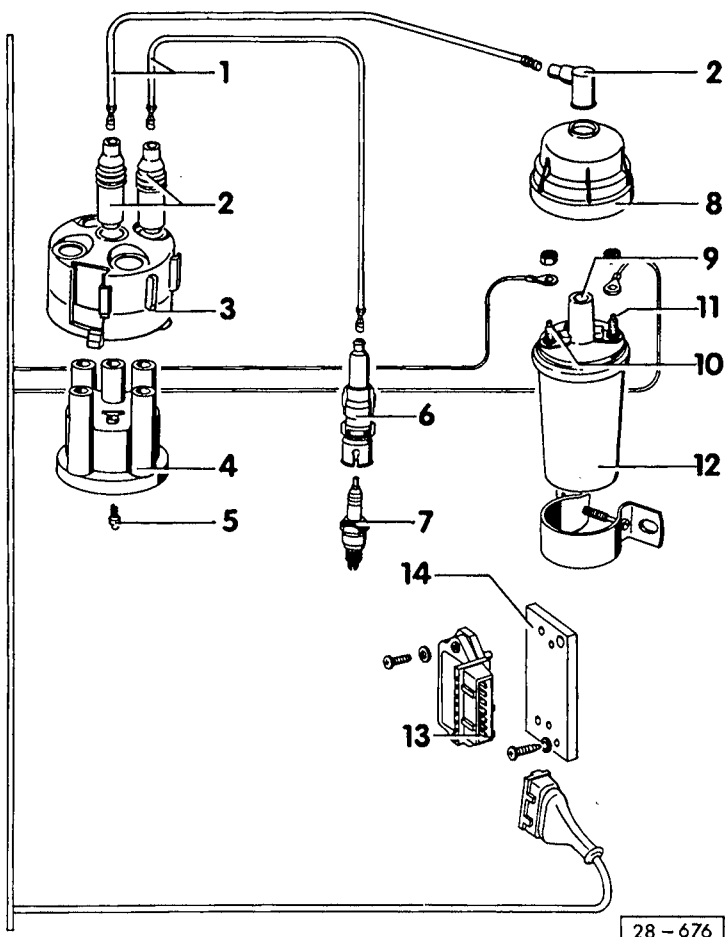
Servicing TCI-H ignition system

Transistorized ignition system with hall sender

Observe safety precautions – page 28-11

Settings, spark plugs – page 28-8

Distributor data – page 28-10



28 - 676

28-1

1 – Ignition cable

- Check for continuity

2 – Suppression connector

- 0.6 – 1.4 k Ω

3 – Shield

- For radio suppression

4 – Distributor cap

- Check for cracks and signs of tracking
- Check contact wear
- Clean before fitting

5 – Carbon brush with spring

- Check for wear, damage and freedom of movement

6 – Spark plug connector

- 4 – 6 k Ω

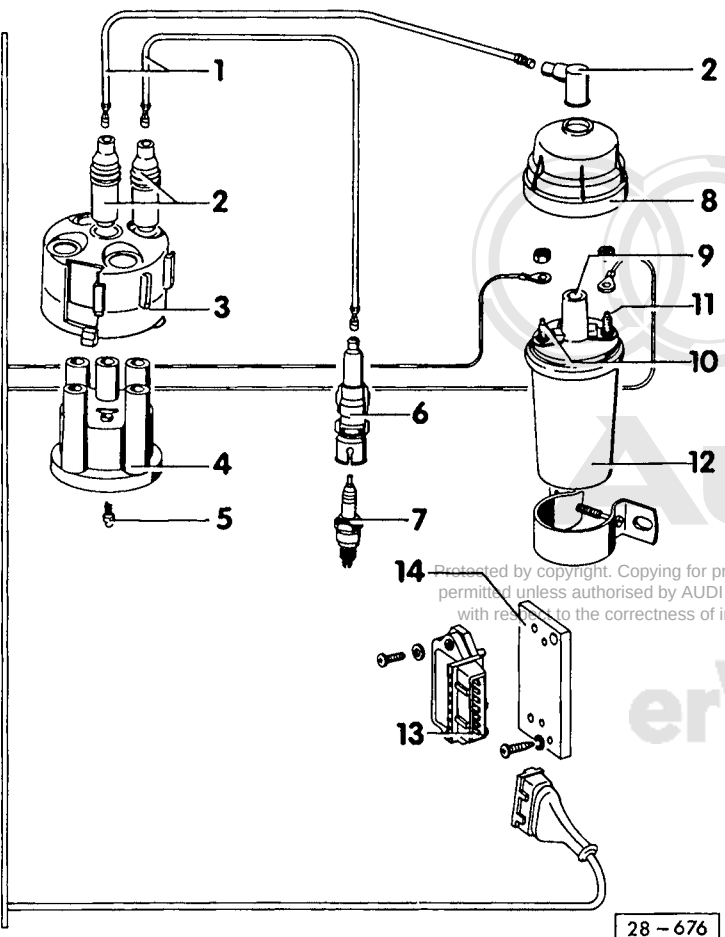
7 – Spark plug (20 Nm)

- Type and electrode gap – page 28-8

8 – Protective cap

9 – Terminal 4

10 – Terminal 1 (-)

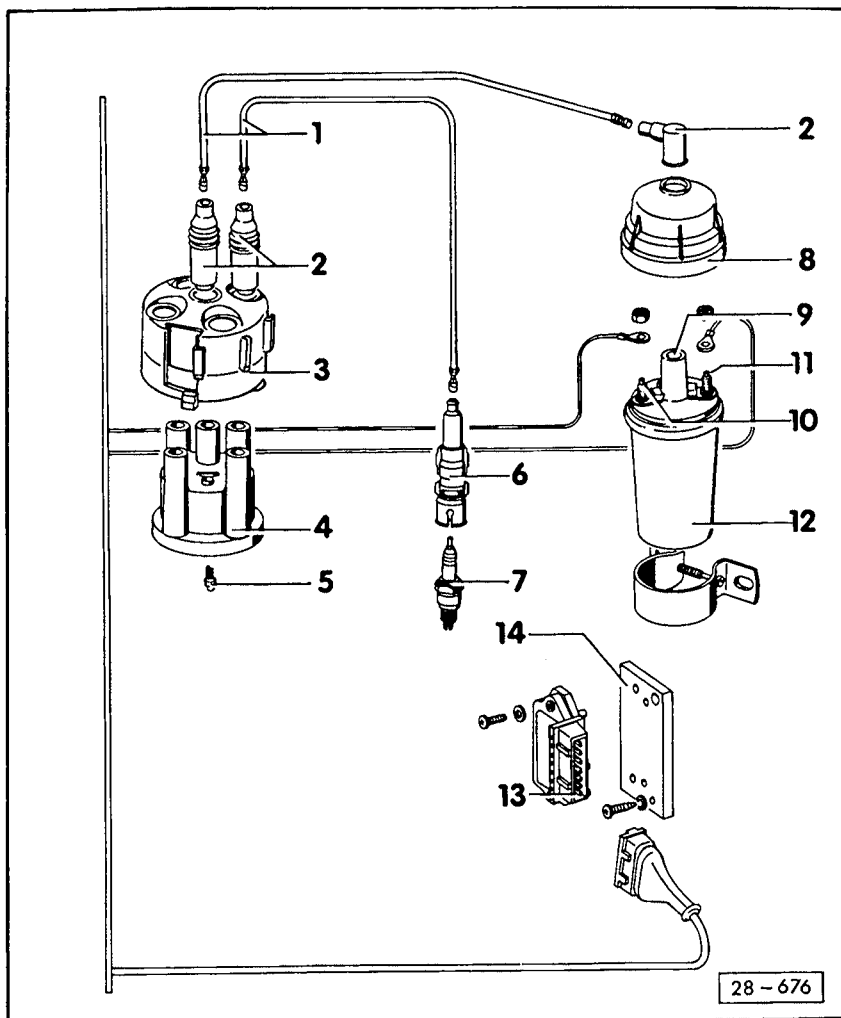


28 - 676

28-2

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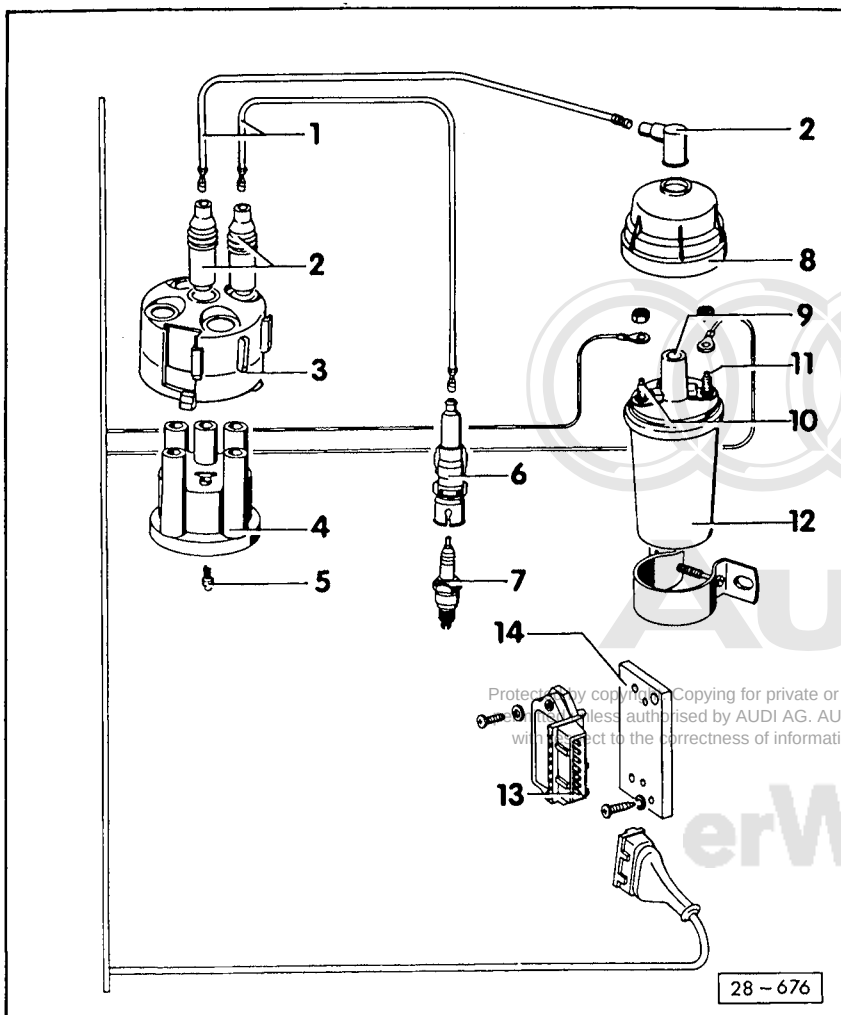
11 – Terminal 15 (+)

12 – Ignition coil

- Primary resistance:
0.52 – 0.76 Ω (between terminals 1 and 15)
- Secondary resistance:
2.4 – 3.5 k Ω (between terminals 15 and 4)

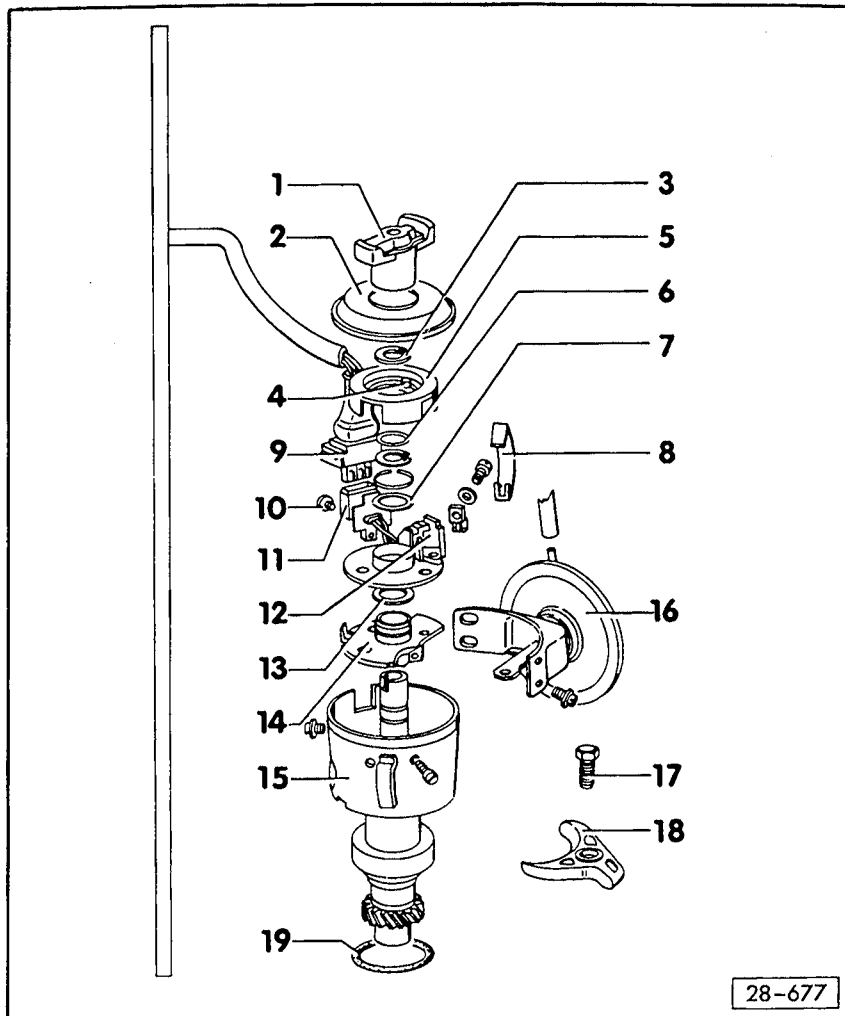
13 – Transistorized ignition switch unit

- Checking – page 28-24
- Installation position : Behind the "A" pillar trim at bottom (front left side footwell)
- For checking and removing :
 - Remove lower screw securing trim and pull out trim at bottom. If this is not possible, also unscrew upper securing screws



14 – Heat sink

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1 – Rotor arm

- Code: R1

- 0.6 – 1.4 k Ω

2 – Dust cap

3 – Locking ring

4 – Pin

5 – Rotor

- Removing and installing – page 28-28

6 – Spring washer(s)

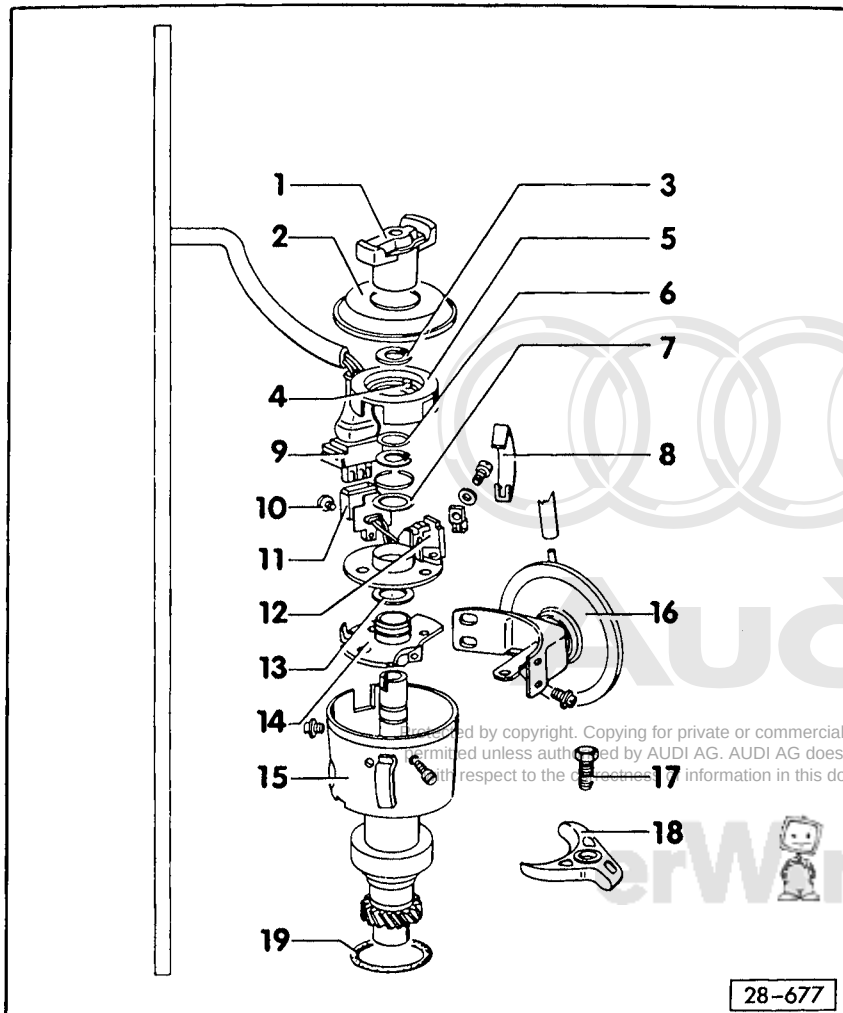
7 – Washer(s)

8 – Spring clip

- When dust cap is removed, the spring clip must not fall inwards (danger of damaging rotor)

28-677

28-5



9 – Connector

- To detach, press wire clip

10 – Retaining button

11 – Connecting part

12 – Hall sender

- Checking – page 28-26

- Lightly grease bearing surfaces

13 – Washer

14 – Base plate

15 – Distributor

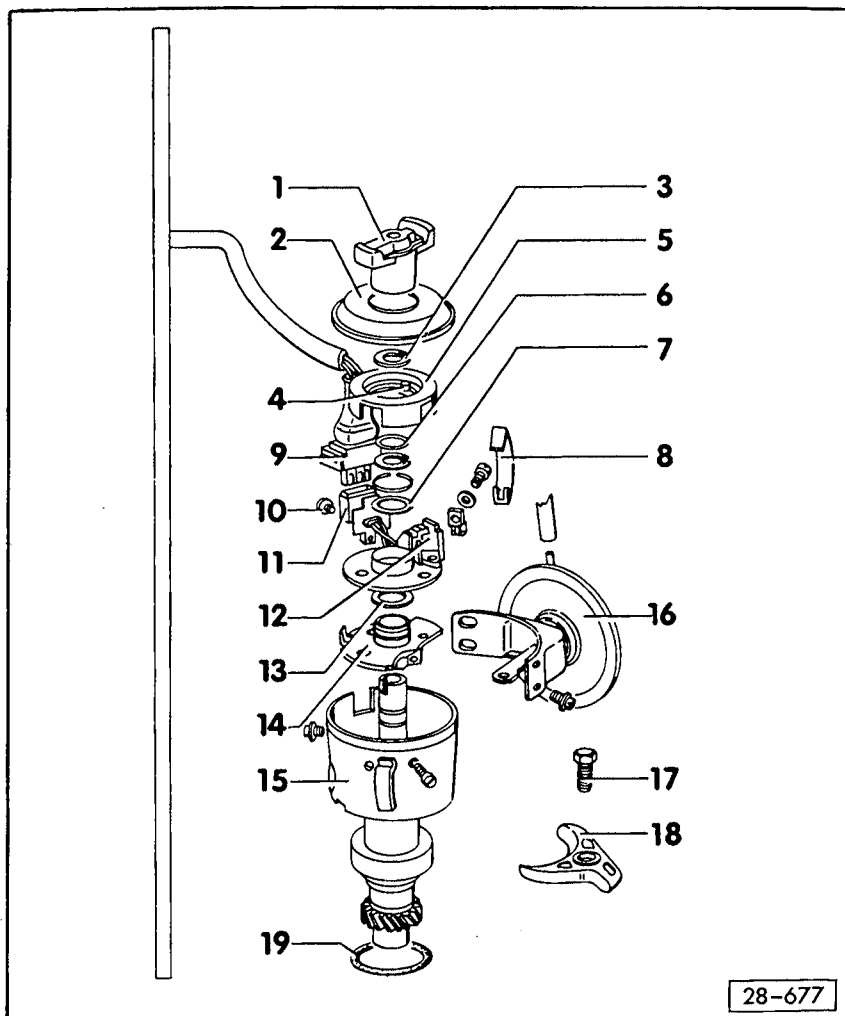
- Installing – page 28-12

- Checking ignition timing control – page 28-16

- Adjusting ignition timing – page 28-15

28-677

28-6



16 – Vacuum unit

- Check for leaks – page 28-19
- Check “advance” control – page 28-20

17 – 25 Nm

18 – Clamp

19 – O-ring

28-7

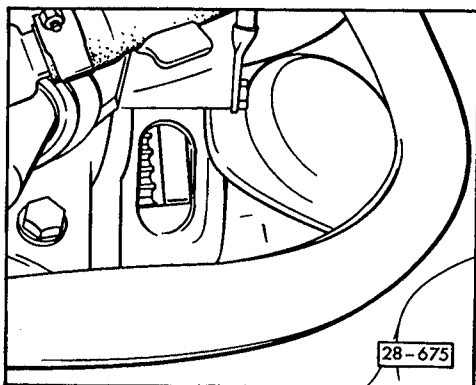
Settings, spark plugs

Engine			
Code letters		RS	SH
Capacity/Output		1.8 ltr. – 55 kW	1.8 ltr. – 66 kW
Introduced from		10.86	08.88
Distributor	Part. No.	050 905 205 E	050 905 205 H
Ignition timing¹⁾			
Test figure		16 ... 20° before TDC	
Setting figure		18 ± 1° before TDC	
Marking		Fig. 28-675 see page 28-9	
Speed	rpm	750 ± 50	950 ± 50
Vacuum hose		on	
Firing order		1 – 3 – 4 – 2	
Spark plugs²⁾		Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of this document. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of this document.	
VW/Audi		101 000 005 AD,	101 000 005 AB,
Manufacturer's designation		101 000 001 AD W 8 DTC, 14-8 DTU, N 9 BYC	101 000 001 AC W 7 DTC, 14-7 DTU, N 7 BYC
Electrode gap	mm	0.9 ... 1.1	0.7 ... 0.9

¹⁾ Note test and adjustment conditions – page 28-15

²⁾ Tightening torque: 20 Nm

28-8



◀ Ignition timing mark

28-9

Distributor data

Engine		RS	SH
Code letters		1.8 ltr. – 55 kW	1.8 ltr. – 66 kW
Capacity/Output		10.86	08.88
Introduced from			
Part. No.		050 905 205 E	050 905 205 H
Centrifugal advance*			
Begins	rpm	1050 ... 1300	1000 ... 1200
	rpm	2000	1600
	degrees	6 ... 11	8 ... 12
	rpm	—	3200
	degrees	—	17 ... 22
Ends	rpm	5000	5800
	degrees	22 ... 26	26 ... 30
Vacuum advance			
Begins	mbar (mmHg)	60 ... 120 (45 ... 90)	100 ... 160 (75 ... 120)
Ends	mbar (mmHg) degrees	320 (235) 13 ... 15	240 ... 260 (180 ... 195) 10 ... 14

* Speed = Engine speed

28-10

Safety measures for TCI-H system

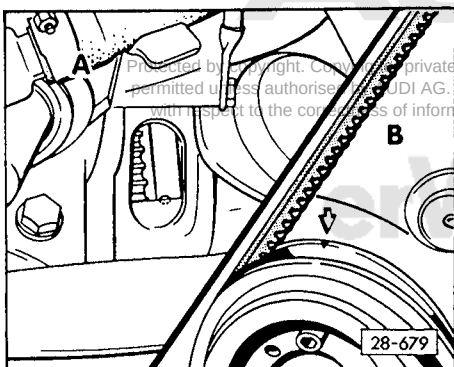
To avoid injuries to persons or damage to the TCI-H ignition system, the following must be observed when working on vehicles fitted with a TCI-H system :

- The ignition must be switched off before any ignition wiring – including HT and test appliance wires – is disconnected or connected.
- When engine is to be turned at starter speed without starting (e.g. when checking compressions) pull the HT lead out of distributor (terminal 4) and earth it.
- A starting boost with quick charger is only permissible for 1 minute at a maximum of 16.5 volts.
- Ignition must be switched off when washing engine.
- When electric and spot welding is being done on the vehicle, the battery must be completely disconnected.

28-11

- Vehicles which have a defect in the ignition or where this is suspected may only be towed with the TCI-H switch unit disconnected.
- Do not connect a condenser to terminal 1 (–).
- Do not replace 1 k Ω rotor arm (marking: R1) with a different type even for radio interference suppression.
- For suppression purposes, only 1 k Ω resistances must be used on the HT leads and 5 k Ω spark plug connectors.

Installing distributor



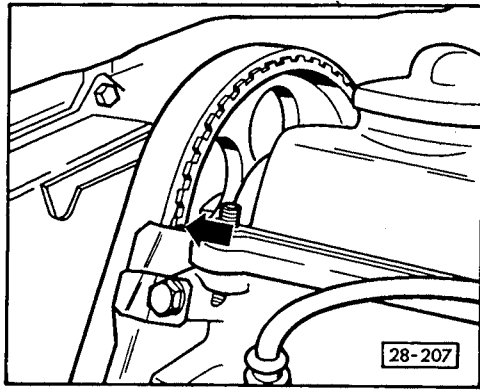
◀ A – Engine in :

- Rotate flywheel or drive plate until number 1 cylinder is at TDC.

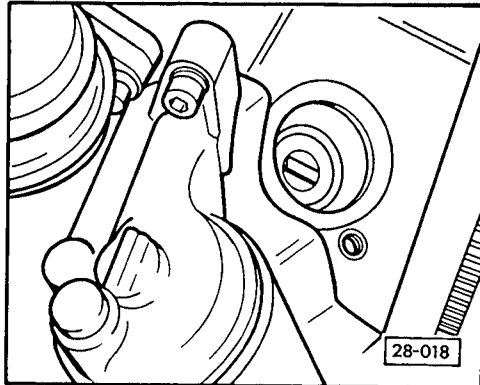
B – Engine out :

- Mark on belt pulley must be in line with arrow on toothed belt guard.

28-12

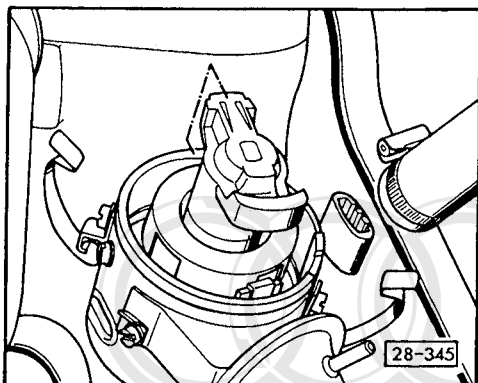


- ◀ – Camshaft sprocket mark must align with cylinder head cover.



- ◀ – The oil pump drive spigot must be parallel to the crankshaft.

28-13



- ◀ – Position the rotor arm so that it points to the number 1 cylinder mark on the distributor housing.
- Fit distributor.
- Before fitting distributor cap, clean and check for cracks and signs of tracking. If necessary renew.
- Adjust ignition timing point.

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Checking and adjusting ignition timing

- Minimum engine oil temperature 60° C.
- Vacuum hose connected.
- Connect speed and ignition tester.
- Start engine and run at idling speed.
- Check ignition timing.

Checking with TDC sender :

The ignition firing point is indicated directly on the test appliance.

Test value :

16 . . . 20° before TDC

- If necessary, adjust timing by turning the distributor.

Setting value :

18 ± 1° before TDC.

28-15

Checking with stroboscope :

- Flash the ignition timing notch – page 28-9.
- If necessary, adjust ignition timing by turning the distributor.

-
- If necessary, correct idling speed.

Checking ignition advance

- Minimum engine oil temperature 60° C.

A – Checking centrifugal advance with TDC sender

(Specifications – page 28-10)

- Connect speed and ignition tester.
- Pull the vacuum hose off the distributor vacuum unit.
- Start engine and set speed to idling.

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- Note advance angle = basic value indicated.
- Increase speed slowly. Beginning of advance is shown by higher number of degrees.
- Compare engine speed with test figure for start of advance.
- Set engine speed to next test speed.
- Read off advance angle on tester.
- Calculate centrifugal advance angle :

$$\frac{\text{Indicated advance angle} - \text{basic angle}}{\quad} = \text{Centrifugal advance angle}$$
- Repeat check at other test speeds.

28-17

B – Checking centrifugal advance with stroboscope

(Specifications – page 28-10).

- Connect speed tester and stroboscope.
- Start engine and run at idling speed.
- Check, and if necessary adjust, ignition timing.
- Pull the vacuum hose off the distributor vacuum unit.
- “Bring the mark back” to centre of TDC mark.

– Note advance angle = basic angle.

- Slowly increase engine speed. Commencement of advance is indicated by the notch moving away.
- Compare engine speed with test figure for start of advance.



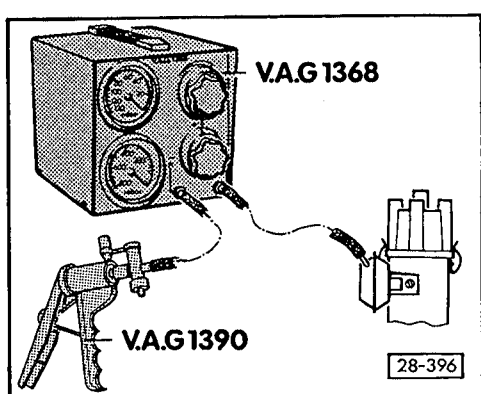
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- Increase the engine speed to the next test speed. "Bring the notch back" to centre of TDC mark and read off advance angle.
- Calculate centrifugal advance angle :

$$\frac{\text{Indicated advance angle} - \text{basic angle}}{\quad} = \text{Centrifugal advance angle}$$
- Repeat check at other test speeds.

C – Checking vacuum advance unit for leaks



- ◀ – Connect vacuum tester and vacuum pump to "advance" vacuum unit.
- Switch tester to throughflow.
- Using the pump, produce a vacuum of 500 mbar.

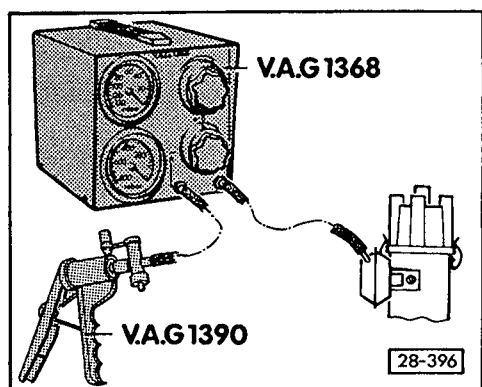
28-19

- Switch tester so that vacuum is held on the vacuum unit side.
- Set vacuum on tester to 450 mbar. Start engine. The vacuum must not drop more than 10 % within 1 minute. Otherwise the vacuum unit or the hose is defective.

D – Checking vacuum advance

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- Connect engine speed and ignition tester or stroboscope.



- ◀ – Connect the vacuum tester and vacuum pump up to the "advance" vacuum unit.
- Switch tester to throughflow.
- Start engine and run at idling speed.

Checking with TDC sender :

- Note indicated advance angle = Basic angle.

28-20

Checking with stroboscope :

- “Bring mark back” to centre of TDC mark.
 - Note indicated advance angle = basic angle.
-
- Using the vacuum pump, produce a vacuum until the ignition firing point begins to move away.
 - Read off vacuum figure and compare with test figure for commencement of advance.
 - Increase vacuum further until figure given for end of advance is reached.
 - Set speed to idling if necessary.

28-21

Checking with TDC sender :

- Read off advance angle and calculate vacuum angle.

Advance angle reading

- Basic angle noted

= Vacuum advance angle

= = = = =

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Checking with stroboscope :

- “Bring mark back” to centre of TDC mark.

Indicated advance angle

- Basic angle noted

= Vacuum advance angle

= = = = =

-
- Increase the vacuum still further. The ignition firing point must not move away.

28-22

Checking TCI-H switch unit and Hall sender

Checking with TCI tester V.A.G 1451

- Carry out test as per instructions given on the tester.

Checking with V.A.G 1315 A digital multimeter or V.A.G 1526 hand multimeter auxiliary cables from V.A.G 1594

Note :

As the internal resistance of the measuring instrument and the ambient temperature have a large influence on the readings, the test should be done with the V.A.G 1315 A digital multimeter or V.A.G 1526 hand multimeter. The specified values are valid for ambient temperatures from 0° to + 40° C.

28-23

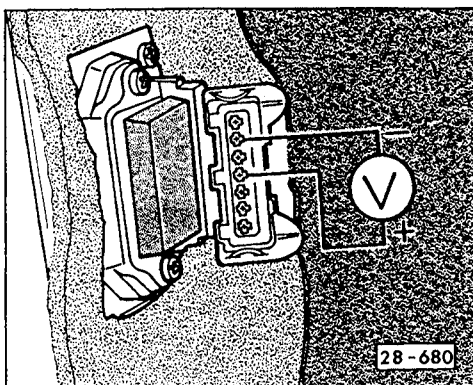
Important

To prevent destruction of the electronic components the voltage measuring range "V=" is to be switched on before connecting the test wires to the multimeter.

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A – Checking TCI-H switch unit

- Coil OK.
- Remove trim on "A" pillar. (Footwell left front side.
- Press wire clip to detach connector from TCI-H switch unit.



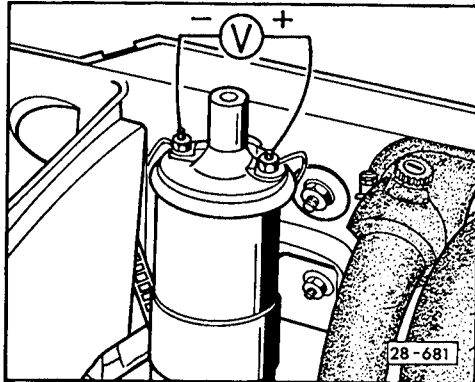
- Connect multimeter between contacts 4 and 2 in connector.
- Switch ignition on.

Specified value :
Approx. battery voltage

otherwise locate open circuit with current flow diagram, and repair.

28-24

- Switch ignition off.
- Attach connector to TCI-H switch unit again.
- Press wire clip to detach connector from Hall sender (distributor).



- ◀ – Connect multimeter between terminal 1 (–) and terminal 15 (+) on ignition.

- Switch ignition on.

Specified value :

At least 2 V, must drop to 0 after approx. 1 – 2 seconds.

Otherwise renew TCI-H switch unit and check whether sealing compound has escaped from the ignition coil. If necessary, renew ignition coil as well.

- Briefly earth centre cable of connector on distributor.

The indicated voltage must rise briefly to at least 2 V.

Otherwise, find open circuit in centre cable and eliminate or renew switch unit.

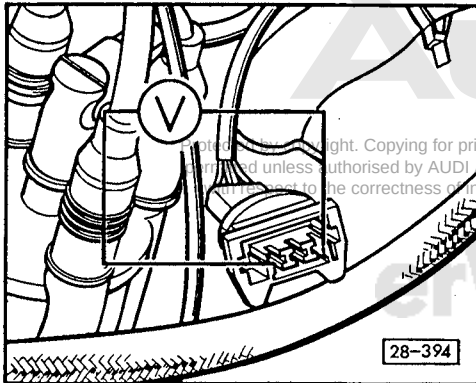
- Switch ignition off.

28-25

- ◀ – Connect multimeter to outer contacts of Hall sender connector (distributor).

- Switch on ignition.

Specified value : At least 5 volts



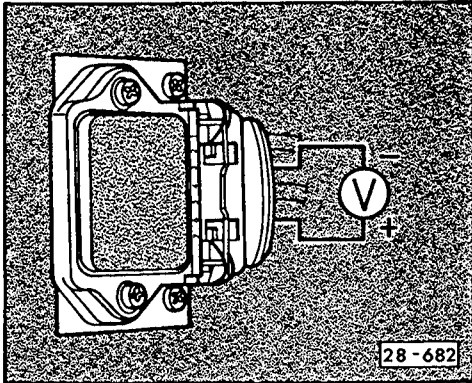
Note : If the fault still exists although the specified values are obtained, the TCI-H switch unit should be renewed or a break in the wire between Hall sender connector and switch unit located and rectified.

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B – Checking Hall sender

- TCI-H switch unit OK.
- Coil OK.
- Wire between TCI-H switch unit and distributor OK.
- Connector and connecting parts on distributor, Hall sender and TCI-H switch unit OK.

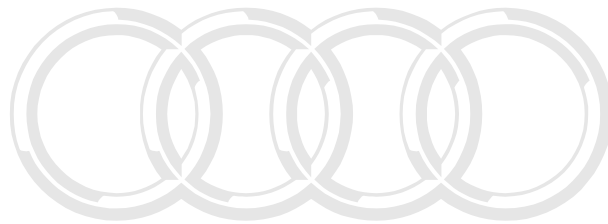
- Pull HT cable out of terminal 4 on distributor and earth it using an extension cable.
- Remove trim at bottom of "A" pillar. (Footwell front left side).



- ◀ – Connect multimeter with aux. cables from V.A.G 1594 between contacts 6 and 3 on TCI-H switch unit plug with plug connected.
- Switch on ignition.
- Turn engine slowly by hand in normal direction of rotation and watch reading on tester.

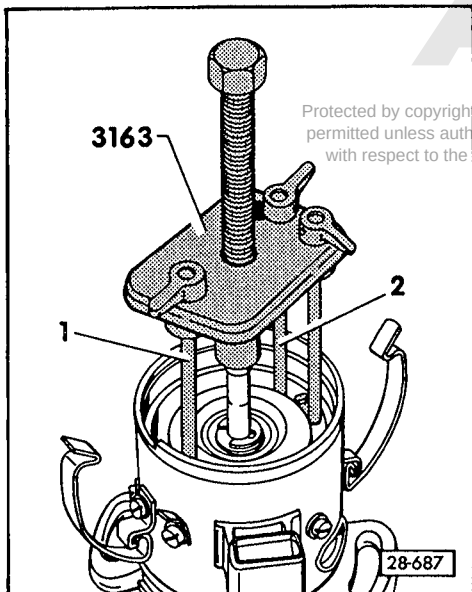
Specified value :
Alternating between 0 and min. 2 volts.

Otherwise Hall sender defective (renew).



28-27

Removing and installing rotor



- ◀ – Engage puller hooks 1 and 2 as shown and pull rotor off.

Notes:

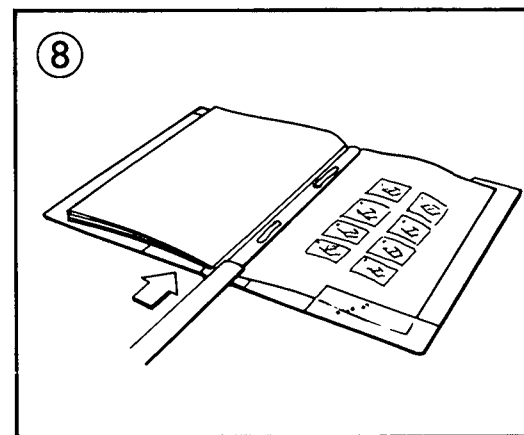
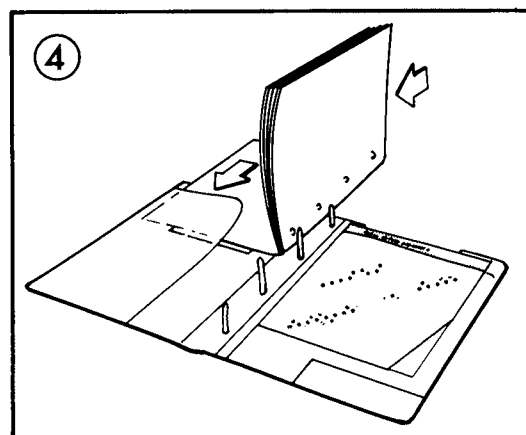
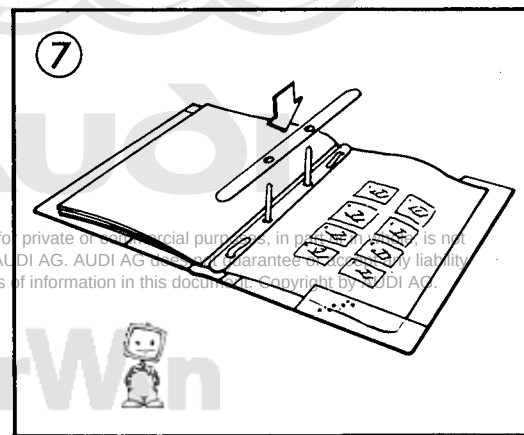
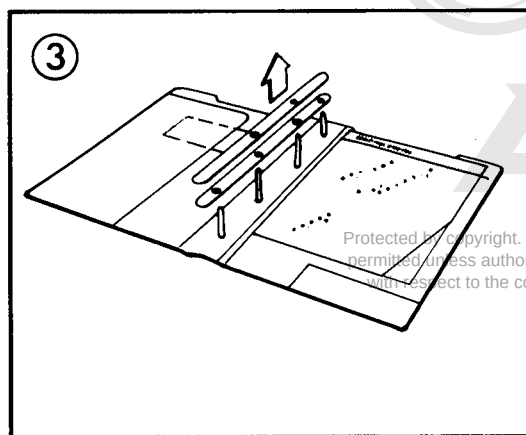
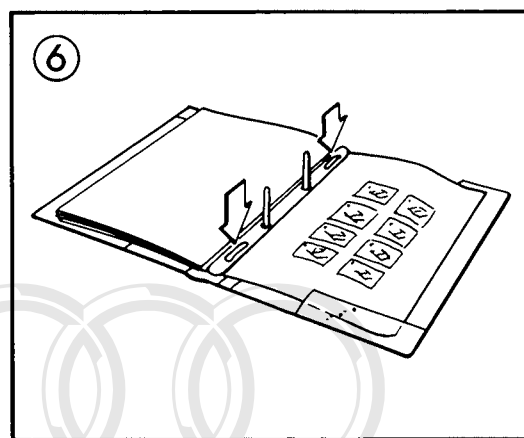
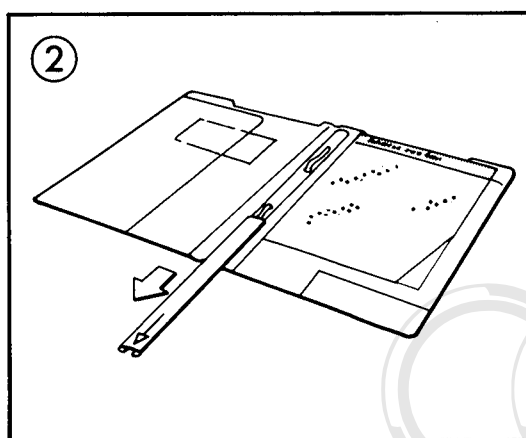
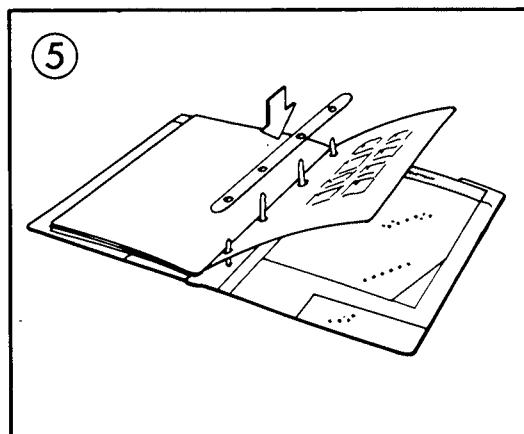
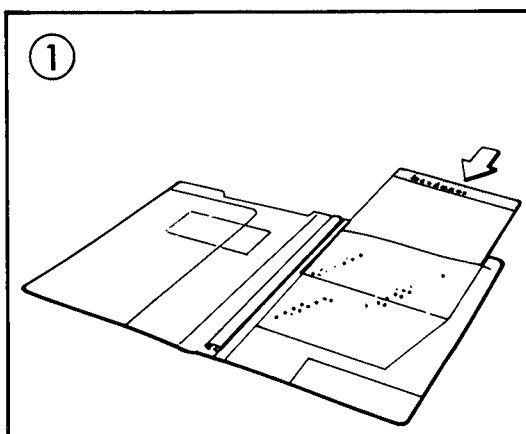
- When pulling the rotor off, ensure that the engagement pin does not drop into the distributor.
- After installing the rotor, check for freedom of movement by rotating the distributor shaft. If the rotor is bent, it must be renewed.



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