A. Carburetor Attachment

The flange attachment of the carburetor to the intake manifold has been newly designed. The carburetor flange remains the same, but the rubber flange (3), the insulating flange (5) and the fastening holes on intake manifold were changed. In addition, a new shield (6) has been installed (Fig. 07-6/1).

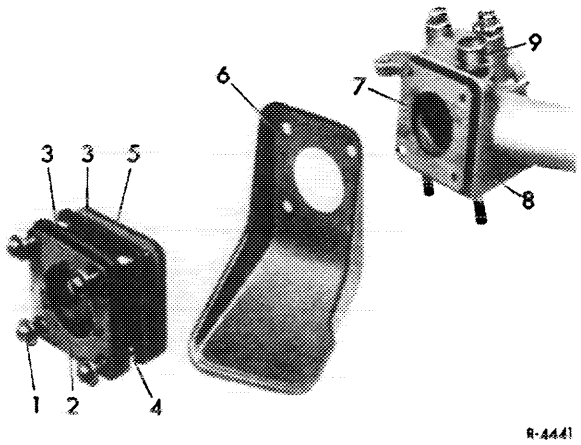


Fig. 07-6/1

1 Carburetor fastening screw
2 Paper gasket
3 Rubber flange
4 Rubber flange fastening screw
5 Insulating flange
6 Shield
7 Paper gasket
8 Intake manifold
9 Water separator

Notes Concerning Repairs

New compenents can also be subsequently installed. However, the fastening holes in intake manifold must be provided with threaded bushings. With the intake manifold installed, proceed as follows:

1 Remove intermediate damper, intake scoop and carburetor.

2 Cover intake duct on intake manifold.

3 Enlarge size of tapped holes with 8 mm dia. twist drill (the two bottom fastening holes are blind holes) and cut new threads with an M 10 tap. Then blow out tapped holes with compressed air.

4 Mount four threaded bushings DB Standard 195a, 900 195 00 61 01 with Omnifit 80.

5 Remove suction duct cover and mount carburetor with new flange members.

Note: For assembly of rubber flange proceed in sequence according to Fig. 07-6/1. For screwing rubber flange (3) to intake manifold by means of fastening screws (4), use hex. socket wrench. Wrench must be introduced through tapped holes for carburetor fastening screws (1).

Standard Installation

Model	as from Chassis End No.
200/8	035 770
220/8	037 265

Spare Parts

Each	Designation	Fig. 07-6/1 Item	Part No.
4	Carburetor fastening screws	1	115 071 00 71
1	Paper gasket	2	115 071 01 80
1	Rubber flange	3	115 071 03 68
4	Rubber flange fastening screws M 6 x 25	4	000 912 00 60 42
4	Snap rings B 6	-	000 127 00 62 03
1	Insulating flange	5	115 071 01 81
1	Shield	6	115 071 00 55
1	Paper gasket	7	115 071 00 80
4	Threaded bushings DB-Standard 195 a		900 195 00 61 01

B. Modification of Venting Duct in Carburetor Housing

The venting duct for the rubber diaphragm in carburetor housing has been modified to avoid damage to diaphragm in the event of backfiring.

Standard Installation

Model	as from Chassis End No. Manual Transmission	Automatic Transmission
200/8	016 490	020 650
220/8	019 352	023 195

On earlier carburetors, the venting duct can be modified by installing a rubber slide piece, Part No. 000 071 01 87 acc. to Fig. 07-6/2. Be sure to install slide piece when a damaged diaphragm must be replaced.

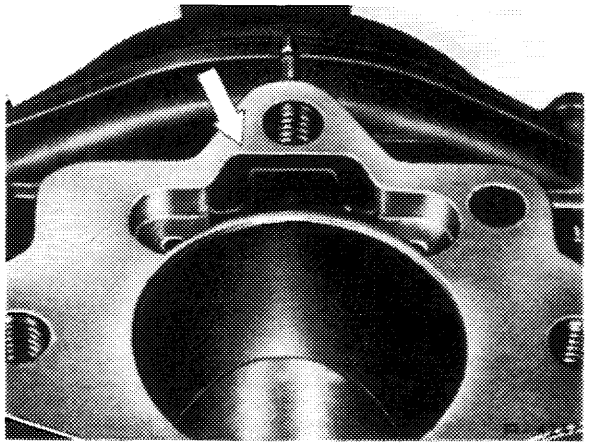


Fig. 07-6/2

Rubber slide piece Part No. 000 071 01 87

C. Idle Speed Shutoff Valve and Subsequent Installation

Idle speed shutoff valve is installed in production models since January 1973.

The idle speed shutoff valve can also be installed in vehicles with a lower chassis end No.

Subsequent installation is covered in section "a". Section "b" provides instructions for exchanging a carburetor without idle speed shutoff valve for a carburetor with idle speed shutoff valve.

Standard Installation

Model	as from Chassis End No.
200/8	154 642
220/8	118 034

a) Subsequent Installation of an Idle Speed Shutoff Valve

Mechanical Section

1 Remove carburetor (Job No. 07-2).

2 Unscrew holding screw with fuel mixture adjustment screw out of carburetor.

3 Screw holding screw (1) into carburetor housing and tighten (Fig. 07-6/3).

4 Screw idle speed shutoff valve into holding screw in carburetor until needle nozzle is flush with bridge in venturi (air horn). Then unscrew idle speed shutoff valve by 2 1/2 turns.

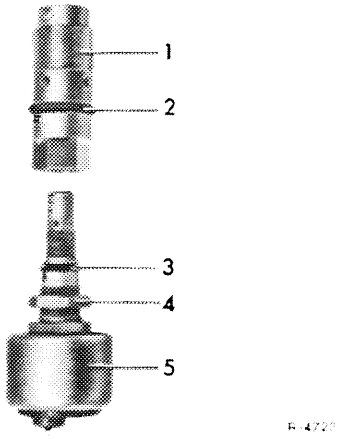


Fig. 07-6/3

1 Holding screw
2 Rubber ring
3 Rubber ring
4 Hex nut
5 Idle speed shutoff valve

5 Check air piston for easy operation.

6 Install carburetor. For this purpose, use insulating flange with legend "Abil-Elring".

Electrical Section

7 Disconnect battery cable.

8 Install time delay switch (1) (Fig. 07-6/4).

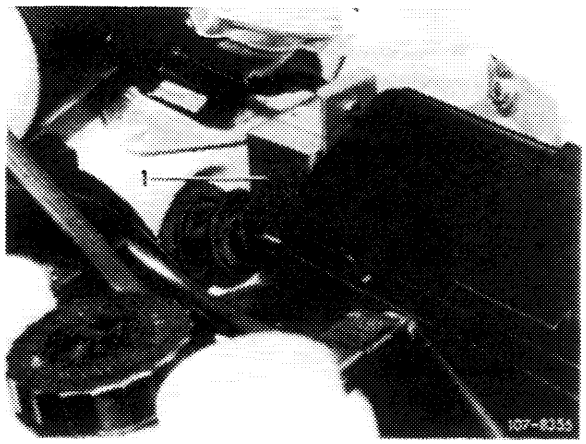


Fig. 07-6/4

1 Time delay switch

9 Install supplementary line assembly along main line assembly (Fig. 07-6/5).

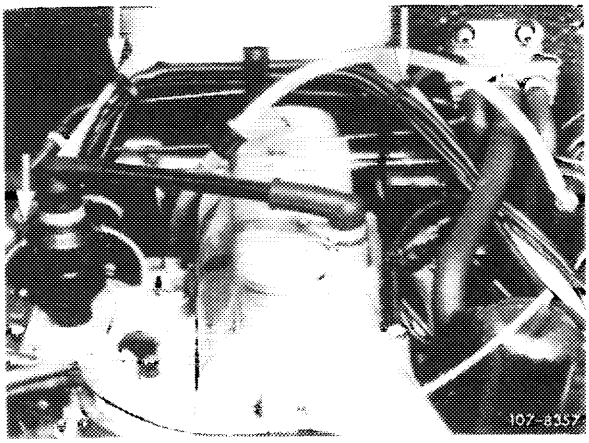


Fig. 07-6/5

Installation of supplementary line assembly

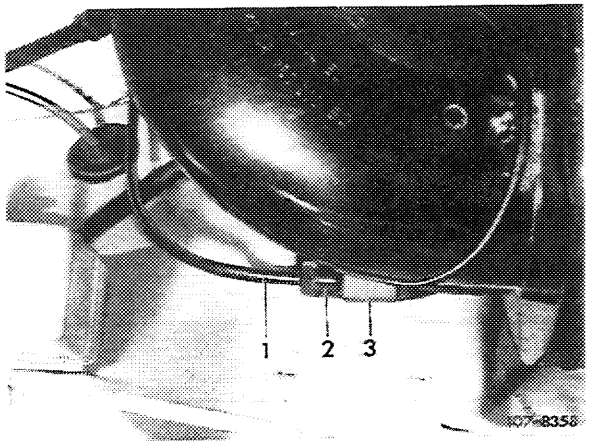


Fig. 07-6/6

1 Line from time delay switch
2 Single plug connection
3 Fastening clip

10 Loosen fusebox and connect cable of supplementary line assembly as follows:

a) Attach 4-way plug connection to time delay switch.

b) Connect red cable to fuse No. 1 (terminal 30).

c) Connect black/red cable to fuse No. 4 (terminal 15/54).

d) Connect brown cable to fastening screw of ignition coil.

Caution! On carburetors with starter cable control, install a grounding line of 1.5 mm^2 from fastening screw of air piston cover on carburetor to fastening screw of generator (alternator) governor.

11 Connect battery cable.

12 Attach single plug connection (Fig. 07-6/6).

Testing Electrical Section

13 Separate single plug connection; connect test lamp to energized cable and to ground.

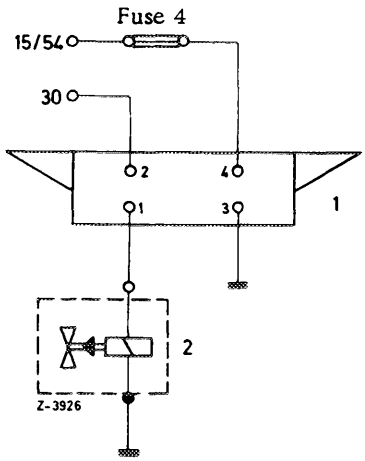
Switch-on ignition: Test lamp may not light up (valve open, no current).

Switch-off ignition: Test lamp should light up 4-8 seconds (valve closed, 4-8 seconds current).

14 Connect single plug connection. Switch ignition on and off. After switching ignition off, shutoff valve should switch audibly and noticeably for approx. 4-8 seconds.

If not, the grounding connection via starter housing is inadequate.

In such cases, install a grounding line of 1.5 mm^2 from fastening screw of air piston cover on carburetor to fastening screw of generator (alternator) governor.



15 Check idle speed with CO-tester and adjust (Job No. 07-3, Section B).

Fig. 07-6/7

Wiring Diagram
1 Time delay switch 2 Idling speed shutoff valve

Spare Parts

Designation	Part No.
Installation set (idle speed shutoff valve)	115 586 01 07

b) Exchanging a Carburetor

If instead of a carburetor without idle speed shutoff valve a carburetor with idle speed shutoff valve is installed, the time delay switch and the cable assembly must be simultaneously installed (refer to Electrical Section in Section "a").

Spare Parts

Designation	Part No.
Carburetor (manual transmission)	000 070 96 04
Carburetor (autom. or manual transmission and air-conditioning)	001 070 01 04
Time delay switch	000 545 62 32
Cable assembly	115 540 52 09
Fastening clip	002 988 48 78

D. Subsequent Installation of Modified Starting Device and Operation of Starter Cable

To improve driving characteristics in the warming-up period, the following modifications were made on the starting device of production cars:

a) The vacuum piston (3) in starter housing is no longer installed and the fuel duct (1) on starter housing is closed (Fig. 07-6/8).

b) The brass tube (2) in fuel duct is no longer calibrated.

c) The fuel bores in starter rotary slide valve are modified. The bores now have the following diameters:

1.7 (formerly 1.5), 0.6 (formerly 0.7), 0.4 (formerly 0.4), 0.4 (new bore).

d) New starter disc (8) for better control of starter cable (Fig. 07-6/9).

e) For better handling, starter cable is provided with a second detent.

Standard Installation

Model	as from Chassis End No.	
	Manual Transmission	Automatic Transmission
200/8	039 595	040 255
220/8	040 175	040 965

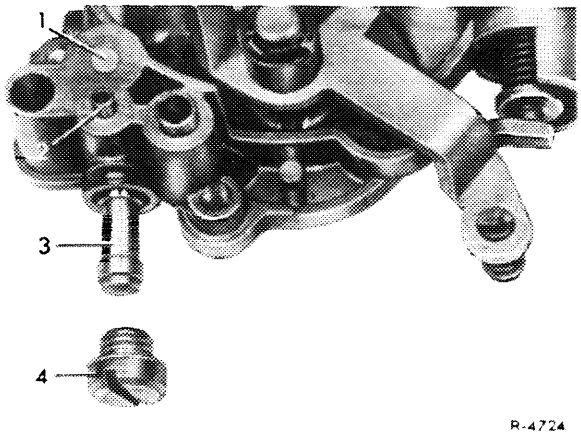


Fig. 07-6/8

1 Fuel duct
2 Brass tube
3 Vacuum piston
4 Closing plug

These modifications on starting device can also be subsequently made as follows:

1 Unscrew starter housing on carburetor.

2 Remove vacuum piston (3). Screw-back closing plug (4).

3 Close fuel duct (1). For this purpose, insert a brass or aluminum wire of approx. 3.5 mm dia. and approx. 8 mm length into duct.

4 Pull out brass tube (2) with pliers. (During subsequent installation, the brass tube is left out).

5 Unscrew starter body from starter housing and mount new starter body.

Note: The new starter body is externally identified by the wide starter disc (8) without a second bore for clamping screw (7 in Fig. 07-6/9).

6 Screw starter housing to carburetor.

7 Install a new guide sleeve with two detents on starter cable. For this purpose, unscrew starter cable from instrument panel and pull out slightly from under instrument panel. Then unscrew the two slotted screws on guide sleeve and pull out guide sleeve.

8 Grease new guide sleeve slightly. Screw starter cable assembly together, attach to instrument panel and check for easy operation.

9 Check oil level in damper (dashpot) for air piston (Job No. 07-3, Section A).

10 Adjust idle speed (Job No. 07-3, Section B).

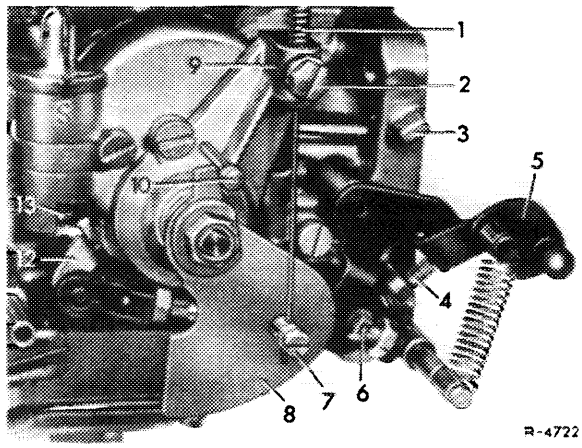


Fig. 07-6/9

1 Starter cable coil
6 Starter adjusting screw
7 Clamping screw
8 Starter disc
9 Holder
10 Starter lever stop

11 Adjusting Starter Cable:

a) Insert starter cable coil (1) up to stop into holder (9) and clamp down.

b) Push starter disc (8) up to stop (10). Then push-in starter cable until a distance of approx. 1 mm is established between starter cable button and instrument panel. Clamp starter cable to starter disc (8).

c) Run engine at operating temperature at idle speed. Pull-out starter cable on instrument panel and push into position "C" (Fig. 07-6/10).

In this position, the speed should be 1,700 to 1,800/min. Adjust engine speed by means of adjusting screw (6), if required (Fig. 07-6/9).

Spare Parts

Designation	Part No.
1 Guide sleeve	115 300 03 22
1 Starter body	000 070 05 47

Operation of Starter Cable (Choke)

The installation of the second detent in the starter cable has slightly changed operation of starter cable. Please inform your customers and employees concerning the subsequent operating instructions with regard to starter cable.

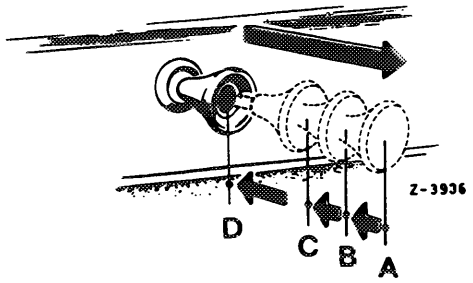


Fig. 07-6/10

A Cold start
B Warming up
C Warming up
D Driving position

Cold Engine

1 Pull out starter cable knob completely (position A).

At temperatures above + 15° C it will be enough to pull out cable control only up to position "B".

2 As soon as the engine has fired, push back starter cable knob to position "B" or "C" and move off. If the engine is not running smoothly in position "B", push back starter cable knob immediately to position "C".

When moving off in position "B", push back starter cable knob after driving for a short distance (depending on outside temperature and engine load) to position "C".

The starter cable knob should remain in position "C" until engine is warm (approx. 60° C cooling water temperature). Then push starter cable knob back completely (driving position "D").

With temperatures around and below 0° C, the righthand vehicle heater should be engaged already during the warming-up period (4 in Fig. 07-6/11) to prevent any icing up of carburetor. This reference is important, since the warm water heating system of the carburetor is connected to the heater at right end of vehicle.

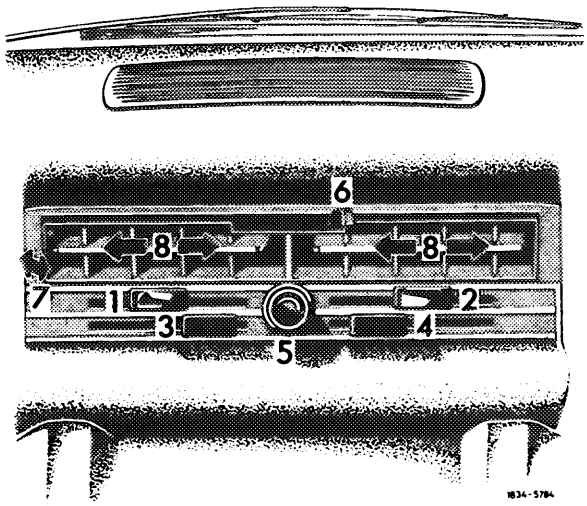


Fig. 07-6/11

4 Heater righthand vehicle end

Warm Engine

Cooling water temperature above 60° C.

Do not pull starter cable knob. Start engine while simultaneously slowly depressing accelerator pedal, up to "full throttle", if required.

Cooling water temperature below 60° C

Pull starter cable knob to position "B" and start, while simultaneously slightly accelerating. Upon starting, push starter cable knob back to position "C" and leave in this position until engine has attained approx. 60° C cooling water temperature, then push back to position "D".

E. Subsequent Installation of a Movable Nozzle Needle

A movable nozzle needle can be subsequently installed as an aid against engine surge due to lean mixture.

1 Remove air piston with diaphragm.

2 Unscrew fastening screw for nozzle needle completely and remove nozzle needle.

3 Carefully clamp air piston into machine vise.

4 Drill hole for nozzle needle first with a 6.0 mm dia. twist drill for a depth of 13 mm, then enlarge hole by drilling to 6.4 mm dia.

5 Clean air piston and blow-out holes.

6 Install nozzle needle with milled surface facing the fastening screw hole (10) and plastic plate (12) just flush with bottom of air piston.

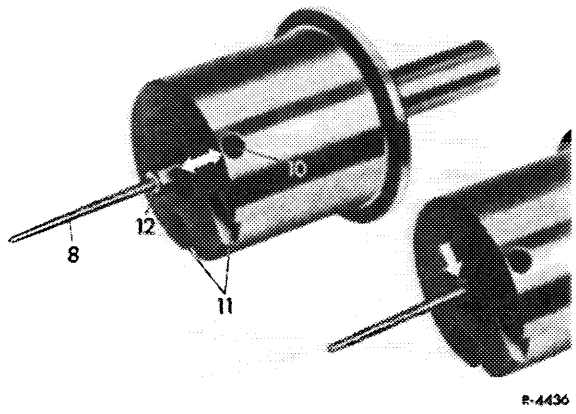


Fig. 07-6/12

8 Nozzle needle
10 Fastening screw hole
11 Vacuum bores
12 Plastic plate

7 Mount air piston and check for easy operation.

8 Check idle speed and CO value with engine at idle and adjust, if required (Job No. 07-3, Section B).

F. Subsequent Installation of Automatic Starting Device

Carburetors with manual starting device (175 CDS) can be subsequently provided with automatic starting. On vehicles up to approx. April 1969 the complete carburetor must be replaced for carburetor version 175 CDT; on vehicles as from approx. April 1969 the starting device can be converted.

a) Installation of Stromberg Carburetor 175 CDT

1 Partially drain cooling water.

2 Remove complete cooling water thermostat housing. Mount new housing with water connection for automatic starting device with new gaskets.

On vehicles with air-conditioning, connect cooling water lines in horizontal section to a pipe bracket.

3 Remove carburetor. Check insulating flange whether paper cover has been pulled inwards. Renew insulating flange, if required. For this purpose, use insulating flange with legend "Abil-Elring" only.

4 Retighten hex. socket screws for attaching rubber flange to intake manifold.

5 Install new carburetor with new paper gasket.

6 Connect connecting hoses and on vehicles with air-conditioning system cooling water lines and attach by means of hose clips. Note that the hose clips are not chafing against control rod and control lever.

7 Install electrical supplementary line assembly along main line assembly in engine compartment and connect to fuse No. 4. Attach grounding cable to bracket for generator (alternator) governor.

8 Add cooling water.

9 Fill oil into reservoir of damper (dashpot).

10 Adjust idle speed and CO-value (Job No. 07-3, Section B).

11 Set cold starting speed of automatic starting device to 3,300-3,600/min (Job No. 07-3, Section D).

12 Cut-off starter cable and bend steel wire slightly so that starter cable cannot be pulled out.

b) Conversion of Stromberg Carburetor 175 CDS

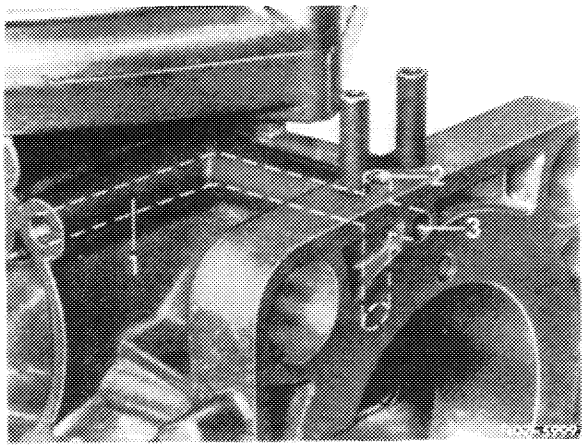
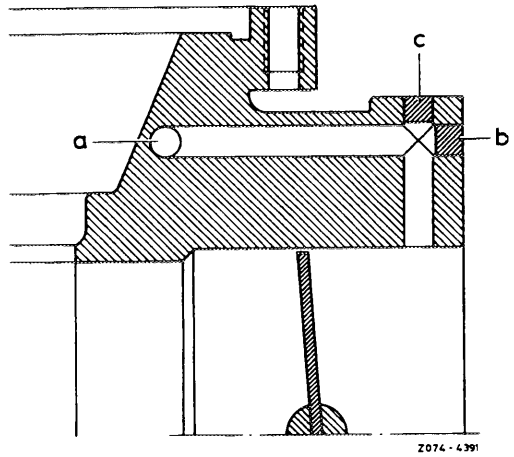


Fig. 07-6/13

1 Vacuum duct 2, 3 Bores



Since approx. April 1969, housings of Stromberg carburetors are provided with a cast-on vacuum duct (1) which must be drilled larger during conversion (Fig. 07-6/13).

1 Remove carburetor.

2 Unscrew manual starting device.

3 Drill vacuum duct (1) with a twist drill of 3.8 mm dia. Drill 34 mm from starter end and 41 mm deep from carburetor flange end. Then drill through from upper edge of carburetor flange.

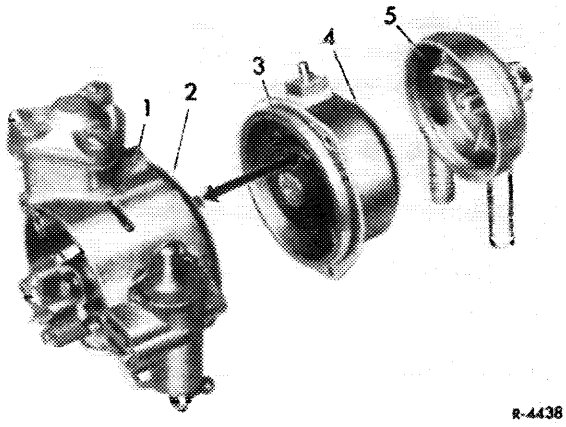
4 Clean carburetor and blow out ducts with compressed air.

5 Close the two bores (2) and (3) with an aluminum pin of 4.0 mm dia. and approx. 5 mm long.

6 Mount starter housing (1) and starter cover (3) with new gaskets. Make sure that the bimetallic spring enters the drive lever (arrow in Fig. 07-6/15).

Fig. 07-6/14

a Vacuum duct b, c Aluminum pin



7 Complete conversion and adjusting jobs according to section F a).

Fig. 07-6/15

1 Starter housing
2 Gasket
3 Starter cover
4 Rubber ring
5 Water cover

Spare Parts

Each	Designation	Part No.
1	Carburetor (autom. transmission)	001 070 01 04
1	Carburetor (manual transmission)	000 070 96 04
1	Electrical supplementary line assembly	115 540 36 09
1	Cooling water thermostat	115 200 01 15
1	Gasket	180 203 08 80
1	Water hose 1 m	900271 007004
4	Hose clips	916002 014100
2	Screw connections	110 997 16 72
2	Aluminum sealing rings	007603 012113

Supplementary Components for Conversion of Carburetors with Manual Starting Device

1	Starter Cover	000 071 26 28
1	Starter housing	000 070 08 47
1	Cover for water connection	000 071 02 67
1	Set of seals and gaskets	000 586 82 07

Supplementary Components for Vehicles with Air-Conditioning

1	Cooling water line - feed	115 200 0254
1	Cooling water line - return	115 200 0354
1	Pipe holder	312 078 0285
1	Hex. screw	000 933 005 071
1	Snap ring	000 127 005 203
1	Nut	000 934 005 004
2	Hollow screws	915 011 006 302
1	Cover for water connection	000 071 02 67

G. Remedies Against Poor Warming-up Characteristics

If on these engines, above all on vehicles provided with automatic transmission, complaints are made with regard to warming-up period in spite of perfect ignition and carburetor adjustment, e.g.
engine not running smoothly at idle (particularly when driving position is engaged)
or
splashing during acceleration; poor transition
or
sooting of spark plugs
or
engine not running smoothly at a cooling water temperature of approx. 50-60° C or stops, the following remedies can be applied.

a) Starter Housing without Adjustable Pulldown (except USA Version)

1 Check intake system for leaks. For this purpose, run engine at idle and pressure-test all sealing points (in particular the sealing points intake pipe - cylinder head). If the speed changes, the sealing point is sucking up false air.

Note: Replace leaking intake manifold seal with a new, not fully hardening sealing compound (e. g. Hylomar).

2 Check Bosch Order No. on ignition distributor. Number is punched-in on distributor housing. Exchange ignition distributors with Bosch Order No. 0 231 170 081 against those with Order No. 0 231 170 138.

3 Disconnect both water hoses on water connection cover of automatic starting device with Matra clips 000 589 40 37 00.

4 Remove starter cover and starter housing. Then install starter housing with adjustable supplementary air screw 000 070 13 47 (Fig. 07-6/19). If a starter cover with code No. 2 (punched into cover) is installed, exchange this cover against another carrying code No. 102 or 90.

5 Drill a 2.5 mm dia. hole at an angle into fuel duct (2) on carburetor housing starting at countersunk hole (arrow in Fig. 07-6/16).

While drilling, close fuel duct (1) against the entry of chips.

Then blow out hole with compressed air and open closed fuel duct again.

Caution! While drilling, make sure that sealing surface (3) of carburetor housing is not damaged.

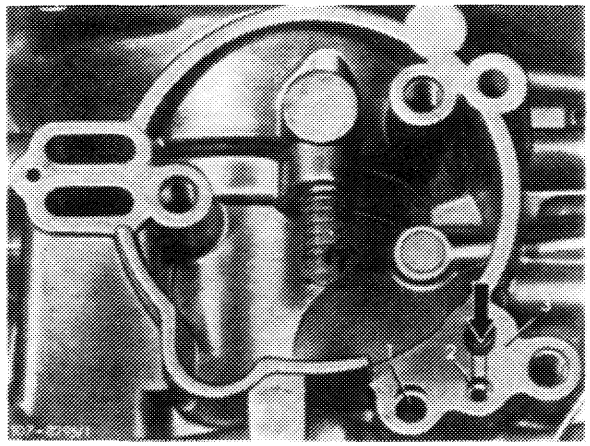


Fig. 07-6/16

1 Fuel feed duct from float chamber
2 Fuel duct toward mixing chamber
3 Sealing surface

6 With starter housing removed, check whether drive lever of bimetallic spring (arrow in Fig. 07-6/17) is at a right angle in relation to starter housing and bend lever, if required.

7 Check starter cover mark (calibration of bimetallic spring). For this purpose, put starter cover aside for approx. 1 hour at an ambient temperature of + 20° C.

Then place starter cover on starter housing and slowly turn clockwise in direction of rotation until starter lever (Fig. 07-6/18, Item 3) comes to rest

at center of second detent of stepped disc (arrow in enlarged view of cutout).

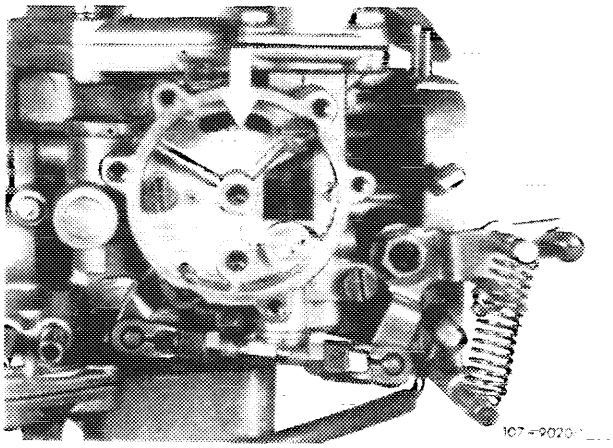


Fig. 07-6/17

Drive lever for bimetallic spring

Note: To avoid faulty calibrations, repeat above check.

In this position, check starter cover mark and punch-in new mark, if required, while removing former mark.

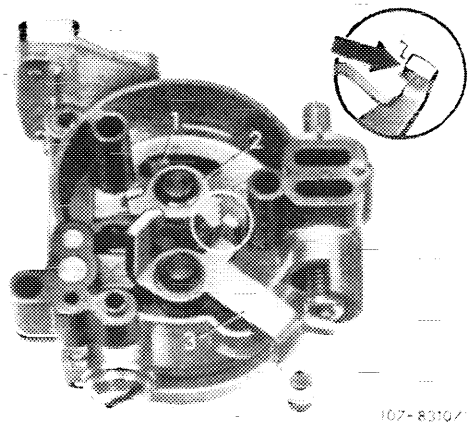


Fig. 07-6/18

1 Drive lever
2 Stepped disc
3 Starter lever

8 Install starter housing with new gasket. Remove Matra clip.

9 Run engine up to operating temperature (oil temperature 60-80° C). Check whether automatic starting device disconnects at a cooling water temperature of 65-75° C. (Make sure that automatic starting device is shutoff at operating temperature).

10 Adjust idle speed and emission value.

Speed: 800-900/min

Emission value: 1.5 - 2.5 % CO

Note: Set idle speed emission value to bottom tolerance, engine should still run smoothly.

11 Check cold starting speed and emission value at 2nd detent (pulldown detent) of stepped disc with engine at operating temperature.

Cold starting speed: 1,800-3,000/min.

Emission value: 8-9 % CO

For this purpose, run engine at idle speed. Raise throttle linkage slightly and push drive lever in direction of engine up to noticeable stop against diaphragm rod of pulldown by means of a small screwdriver through slot in starter housing. Release linkage. But continue keeping drive lever against pulldown stop.

Caution! If the noticeable stop is exceeded, emission and speed measurements will be wrong due to displacement of starting valve and stepped disc.

Read cold starting speed and emission value. If cold starting speed is not within tolerance, adjust at starter connecting rod.

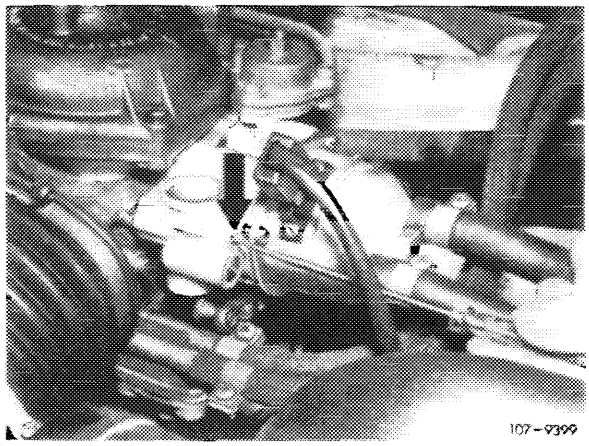


Fig. 07-6/19

Supplementary air adjusting screw

If the emission value is not within tolerance, adjust by means of supplementary air adjusting screw (arrow in Fig. 07-6/19). Then secure adjusting screw with locking fluid.

Screw ing-out = Warming-up mixture leaner
Screwing-in = Warming-up mixture richer

Note: A leaner warming-up mixture will obviously also result in a leaner starting mixture. As a result, particularly when outside temperatures are low, the engine may show a tendency toward stopping after starting. Additional starting is therefore no cause for complaints. (Customers may be informed when picking up vehicle.)

Spare Parts

Designation	Part No.
Starter housing	000 070 13 47
Starter cover (Code No. 102)	000 071 26 28
Adjusting screw (starter housing)	001 071 25 71

b) Starter Housing with Adjustable Pulldown

1 Adjust idle speed and emission value.

Speed: 800-900/min

Emission value: 1.5-2.5 % CO

Note: Set idle speed emission value to bottom tolerance. Engine should then still run smoothly.

2 Check cold starting speed and emission value at second detent (pulldown detent) of stepped disc with engine at operating temperature (refer to a).

Cold starting speed: 1,800-2,000/min

Emission value: 8-9 % CO

If the cold starting speed is not within tolerance, adjust at starter connecting rod.

If emission value is too high, adjust cold starting speed first to upper tolerance and then check emission value once again. (Increasing the speed will change warming-up mixture toward lean).

If emission value is still too high in spite of increasing cold starting speed, make adjustment by means of adjusting screw (1) (Fig. 07-6/20).

Permissible adjusting range (dimension a = 8.5-9.5 mm).

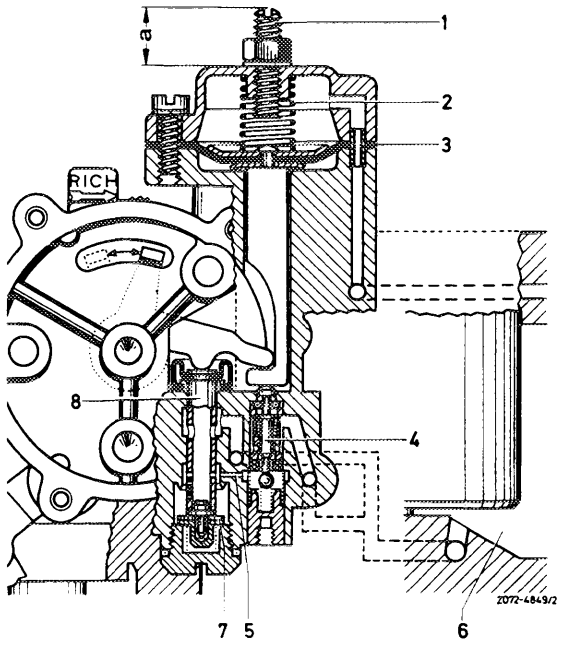


Fig. 07-6/20

1 Adjusting screw (pulldown)
2 Compression spring
3 Diaphragm
4 Start enriching valve
5 Fuel duct
6 Mixing chamber
7 Valve plate
8 Starting valve
Dimension a = 8.5-9.5 mm

Screwing-out = Warming-up mixture leaner
Screwing-in = Warming-up mixture richer

Note: Only when emission value cannot be adjusted in spite of max. adjustment of pullwown adjusting screw, install starter housing with supplementary air screw 000 070 13 47. (Refer to a) with the exception of Items 2 and 5). (Except USA version).

H. Positively Controlled Float Needle Valve

Production vehicles are provided with a float needle valve with positively controlled float needle. Float needle is additionally provided with a spring-loaded ball for seat on lug of float arm.

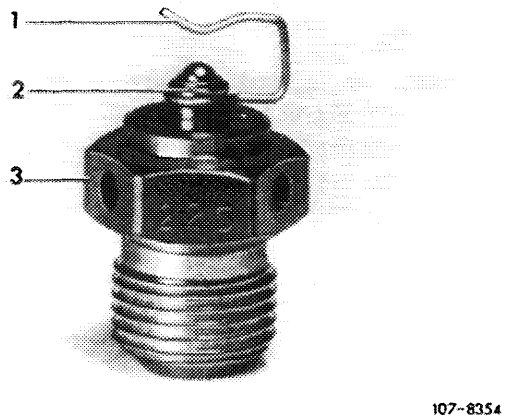


Fig. 07-6/21

1 Wire clip
2 Float needle with spring-loaded ball
3 Valve housing

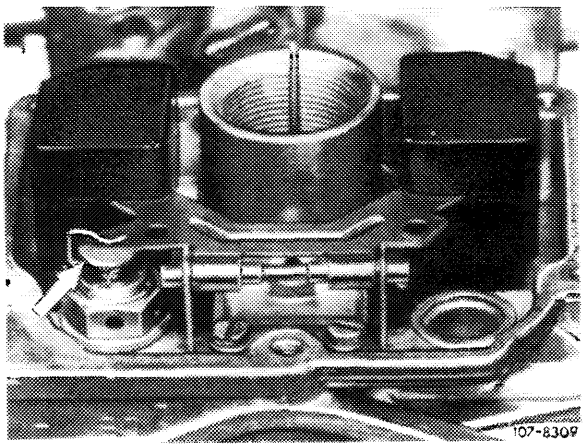


Fig. 07-6/22

Float assembly

Standard Installation

Model	Model Designation	as from Chassis End No.
200	115.015	135 775
220	115.010	106 460

The float needle valve with positively controlled float needle can be subsequently also installed in vehicles with low chassis end No. This is recommended as a remedy in the event of complaints about the float needle.

Caution! The adjusting dimension of the float has been changed:

It is now 16 - 17 mm.

This adjusting dimension applies also to the float needle of the former, rigid version.

On the float needle valve with spring-loaded ball this dimension applies with the ball pushed down. Install float needle valve with a seal 1 mm thick.

Corrections of float level can be made by bending lug on float arm (arrow in Fig. 07-6/22).

Spare Part

Designation	Part No.
Float needle valve	000 070 01 42