Test Values

Idle speed		1/min	800-900
Exhaust (emission) value	Model year 1968-1970	% CO	2.0-3.5
	Starting January 1971 Europe emission control		1.0-2.5
Vacuum governor adjustment	Adjustment pressure screw Vacuum hose pulled off	1/min	1200-1400
	Distance throttle valve lever - pressure screw	mm	0.5
Float housing - venting valve lift (engine shut off)		mm	min. 1
Basic adjustment - connecting rod		mm	28-30
Cold starting speed 1/min (Operating temperature)		1700-1800 with starter cable control	3300-3600 with automatic starting
Automatic starting - cover preload		-	to mark

USA - Version

All USA-vehicles should be set to the values named on reference plate for emission control system.

Model year			1970/71	1972	1973
Idle speed		1/min	750-850		
Exhaust gas (emission) value at idle		% CO	3.0-4.0	2.0-3.5	max 1.5
Cold starting speed (measured at operating temperature)		1/min	2400-2800		2600-2800
Automatic starting cover preload			to mark		
Vacuum governor-adjustment	Adjustment pressure screw Vacuum hose pulled off	1/min	1600-1700		1200-1400
	Distance throttle valve lever - pressure screw	mm	0.5		

Test Instruments

Revolution counter, CO-tester, oil telethermometer

A. Checking Oil Level in Damper (Dashpot)

1 Use oil specified for engine as damper oil.

Add ATF during extended frost periods below -20° C.

With Oil Supply Tank:

2 Check oil level in oil supply tank and add oil.

Without Oil Supply Tank:

Unscrew closing plug of damper (dashpot) and remove damper. Oil level should extend up to upper edge of piston shaft (arrow).

Fig. 07-3/1

Oil supply tank

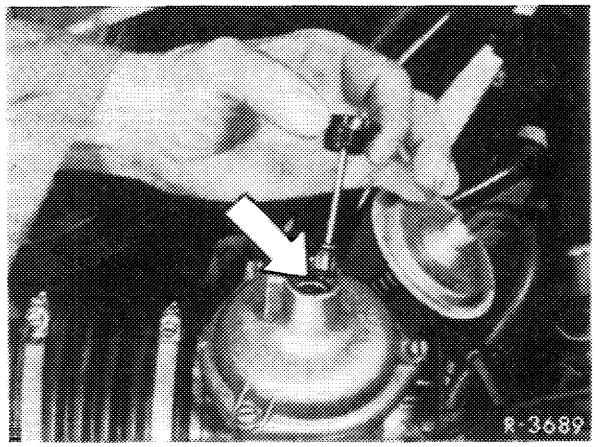

Fig. 07-3/2

B. Adjusting Idle Speed and Regulating Linkage

1 Prior to idle speed adjustment, check electrode gap of spark plugs, timing angle, firing point and intake system for leaks.

2 Switch off righthand vehicle heater and run engine to 60-80° C oil temperature.

Caution! Do not adjust idle speed when engine is too hot, e. g., following a fast drive or after measuring the performance on dynamometer.

3 Disconnect control rod on carburetor.

4 Check throttle valve for easy operation.

5 Set to specified speed by means of idle speed adjusting screw (1) (Fig. 07-3/3).

Check whether idle speed stop is at throttle valve lever and not at vacuum governor. Set vacuum governor back, if required.

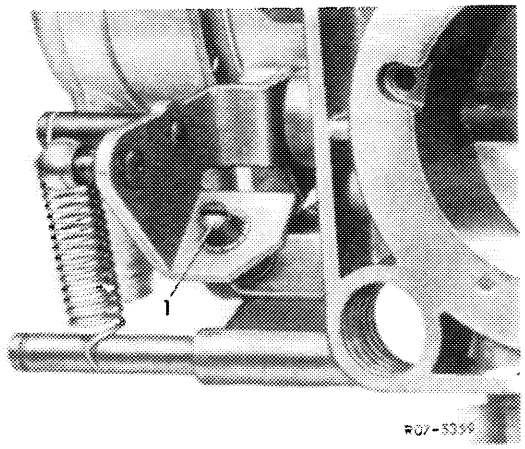

Fig. 07-3/3

1 Idle speed adjusting screw

6 Check specified emission value by means of emission tester and adjust, if required.

If required, adjust emission value by means of fuel control screw (2) (Fig. 07-3/4).

Screwing out = richer
Screwing in = leaner

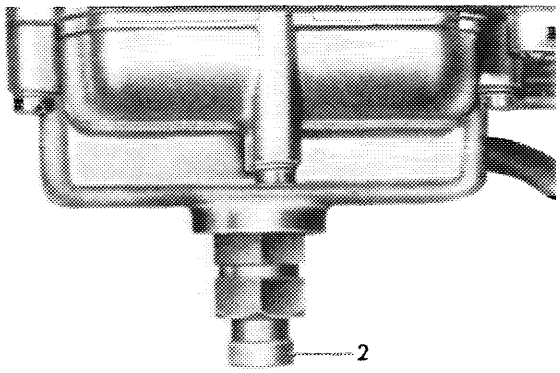

Fig. 07-3/4

2 Fuel control crew

Carburetor with Idle Speed Shutoff Valve

Adjust emission value with fuel control screw (4) (simultaneously idle speed shutoff valve). For this purpose, loosen counternut (3) while simultaneously counterholding holding screw (2).

Following each adjustment of idle speed adjusting screw and of fuel control screw, accelerate for

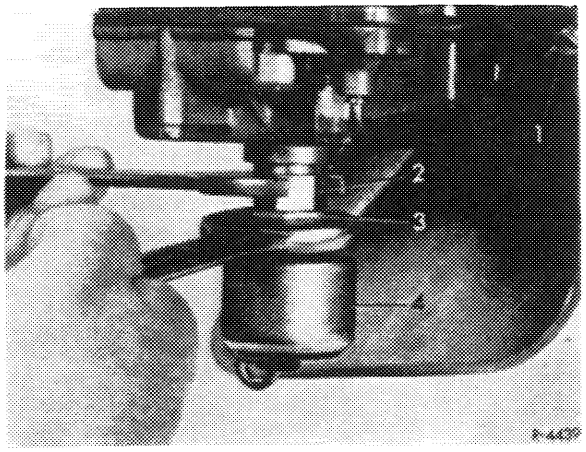

Fig. 07-3/5

2 Holding screw
3 Counternut
4 Fuel control screw (idle speed shutoff valve)

a short moment, check speed and emission value once again and adjust, if required.

7 Check idle speed once again and adjust with idle speed adjusting screw (1), if required.

8 Adjust control linkage.

On vehicles with manual transmission, attach control rod (1) and adjust in such a manner that roller (3) in gate lever (2) rests free of tension against end stop (Fig. 07-3/6).

Note: Control rod has lefthand and righthand threads.

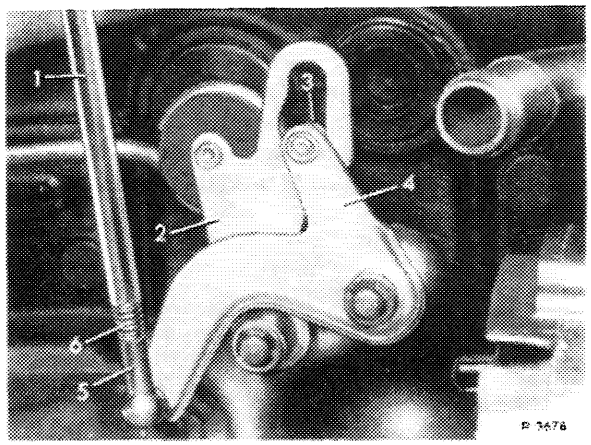

Fig. 07-3/6
1 Control rod
2 Gate lever
3 Roller
4 Angle lever
5 Ball socket
6 Compression spring

On vehicles with automatic transmission, run engine at idle speed. Adjust control rod (12) with ball socket in such a manner That control rod can be attached free of tension when completely pulled out (Fig. 07-3/7).

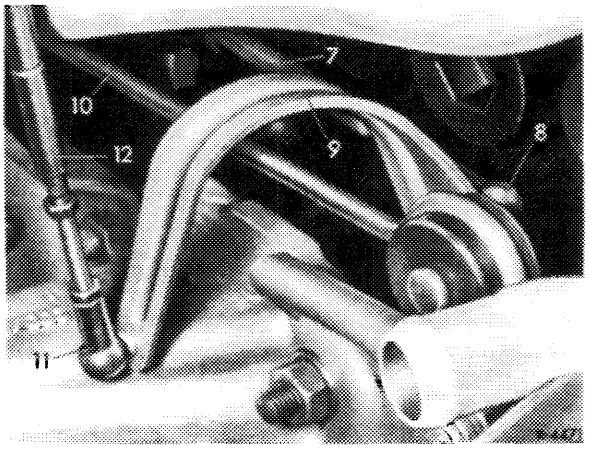

Fig. 07-3/7

7 Pullrod
8 Ball socket
9 Intermediate lever
10 Control rod
11 Ball socket
12 Control rod

9 Check full throttle stop with engine shut off. For this purpose, depress accelerator pedal from inside vehicle. Accelerator pedal and throttle valve lever should each rest against full throttle stop. If required, adjust control shaft (6) at front wall after loosening fastening screw (7) (Fig. 07-3/8).

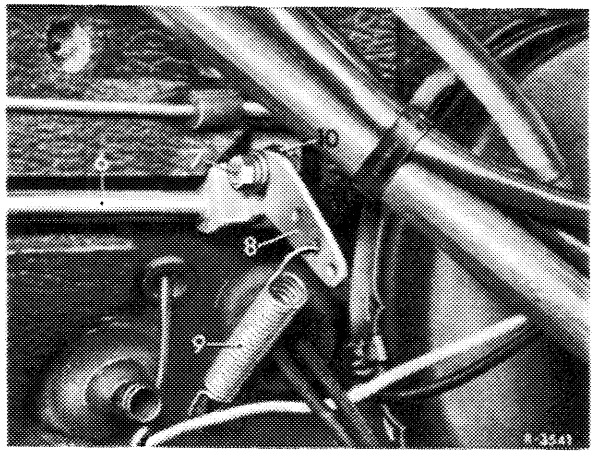

Fig. 07-3/8

6 Control shaft
7 Fastening screw
8 Control lever
9 Return spring
10 Pedal lever

C. Adjusting Starter Cable

Engine should be at operating temperature and idle speed correctly set.

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

2 Push starter disc (8) up to stop (10). Push starter cable inwards until the distance between starter cable knob and instrument panel is approx. 1 mm. Clamp starter cable to starter disc (8) (Fig. 07-3/9).

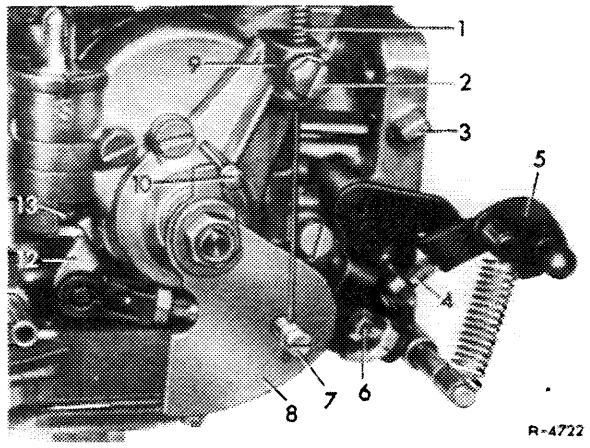

Fig. 07-3/9

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

3 Run engine at idle speed. Pull starter cable on instrument panel to position "A". On starter cable with one detent push into position "B", and on starter cable with two detents into position "C", then adjust to speed of 1700-1800/min by means of starter adjusting screw (6) (Fig. 07-3/9 and 10).

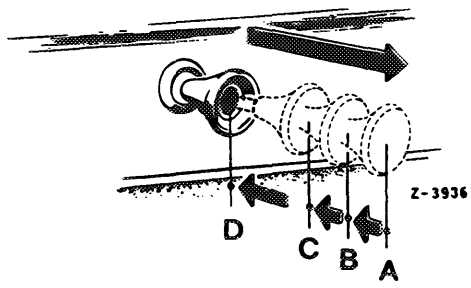

Fig. 07-3/10

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

D. Adjusting Automatic Starting Device

The engine should be at operating temperature, idle speed should be correctly set.

1 Check adjustment of starter cover. Markings on starter housing and starter cover should be in alignment (refer to Job No. 07-6 section G item 7).

2 Check cold-starting speed. Run engine at idle speed. Raise gas linkage slightly and push drive lever (1) in direction of engine by means of a small screwdriver through slot of starter housing (Fig. 07-3/11) (Fig. 07-3/12). Release gas linkage and drive lever. The starter lever (3) will now rest on upper detent of stepped disc (2).

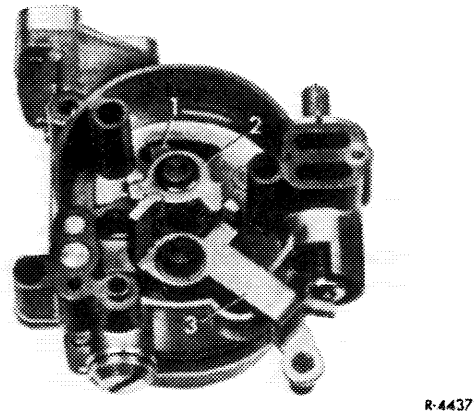

Fig. 07-3/12

1 Drive lever
2 Stepped disc
3 Starter lever

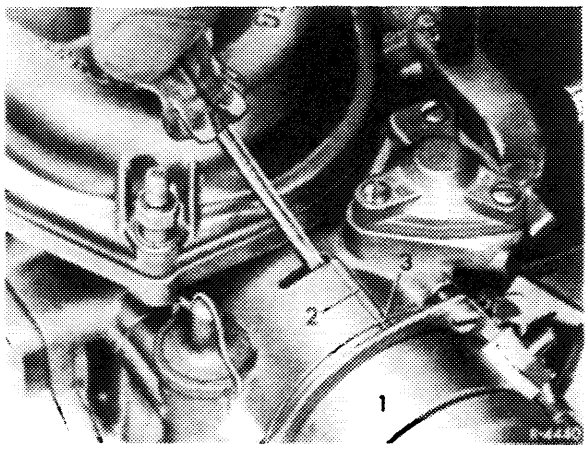

Fig. 07-3/11

1 Starter cover
2 Mark-starter housing
3 Mark-starter cover

Measure speed. Speed should be 3300-3600/min. If speed requires correction, adjust connecting rod (1).

For this purpose, loosen both hex. nuts (2) and (4) on connecting rod with lefthand and righthand threads, and turn threaded bolt (3). Shortening of rod (toward carburetor) reduces speed, extension of rod increases speed. Counterlock both hex. nuts again (Fig. 07-3/14).

Note: 1/2 turn of threaded bolt results in a speed change of approx. 200-300/min.

The basic dimension "a" of connecting rod is 28-30 mm (Fig. 07-3/13).

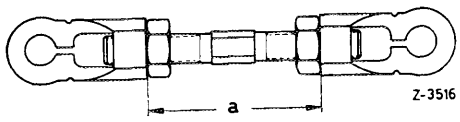

Fig. 07-3/13
a = 28-30 mm

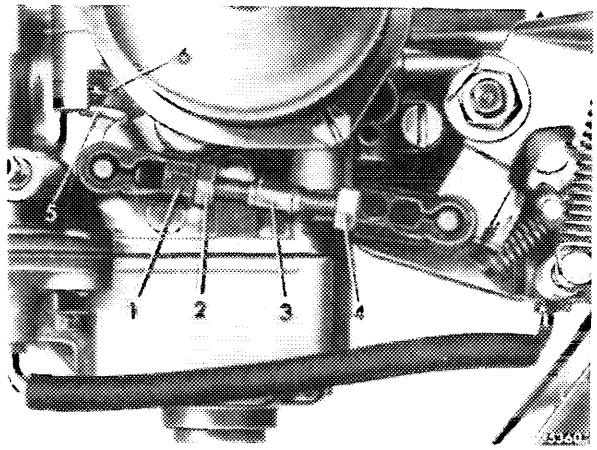

Fig. 07-3/14

1 Connecting rod
2 Hex. nut
3 Threaded bolt
4 Hex nut
5 Actuating lever
6 Venting valve

3 Check whether throttle valve lever rests against idle speed stop.

E. Adjusting Vacuum Governor

A prerequisite is perfect idle speed and engine at operating temperature.

1 Run engine at idle speed and pull off vacuum hose (1) of vacuum governor. Adjust specified speed by means of adjusting screw (8). Reattach vacuum hose.

2 At idle speed of engine, set adjusting nut (2) in such a manner that the play between the adjusting screw (3) and the throttle valve lever (4) is 0.5 mm (Fig. 07-3/15).

Caution! When loosening counternut, apply counterhold to diaphragm rod.

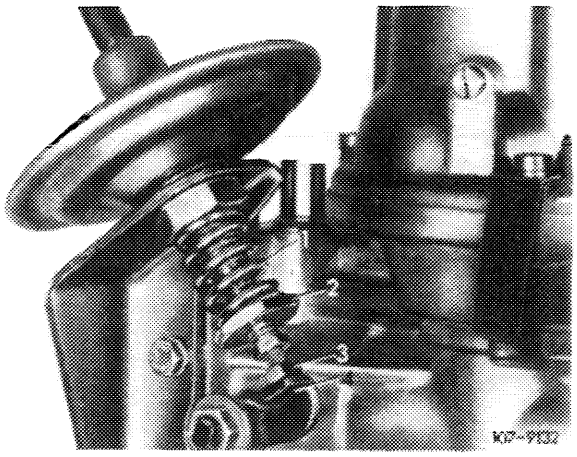

Fig. 07-3/15

1 Compression spring
2 Adjusting nut
3 Adjusting screw
4 Throttle valve lever

F. Checking and Adjusting Adjustment of Float Housing-Venting Valve

1 When the idle speed, the starter and the vacuum governor are correctly adjusted, the venting valve (6) should be lifted by at least 1 mm by the actuating lever (5) when the engine is stopped. Adjust connecting rod (3), if required (Fig. 07-3/16).

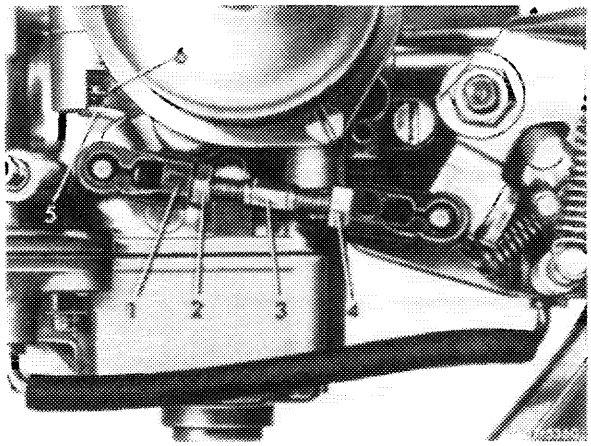

Fig. 07-3/16

3 Connecting rod
5 Actuating lever
6 Venting valve

G. Checking Fuel Return Flow Valve

1 Pull off fuel return hose on connection toward return line. Hold fuel return hose into a container and check whether a firm fuel jet emerges at idle speed. Check vacuum bore and vacuum hose, if required.

H. Checking Electric Fuel Shutoff Valve

1 Separate single plug connection: connect test lamp to energized cable and to ground.

2 Switch-on ignition: test lamp should not light up (valve open, no power flow).

3 Switch-off ignition: test lamp should light up 4-8 seconds (valve closed, 4-8 seconds power flow).

4 Connect single plug connection.

Switch ignition on and off. After ignition is switched off, idle speed shutoff valve should still switch audibly and noticeably for approx. 4-8 seconds.

If not, grounding connection via starter housing is unsatisfactory.

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

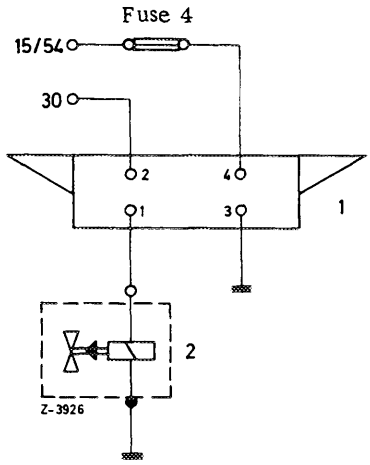

Fig. 07-3/17

1 Time-lag relay 2 Fuel shutoff valve

I. Surge Due to Lean Mixture in Lower Partial Load Range

In the event of complaints with regard to engine surge due to lean mixture in lower partial load range (up to approx. 2000/min), adjust fuel control screw with an emission tester to the still permissible tolerance limit of 4.5 % CO.

If the surge is not eliminated, remove vacuum hose from carburetor toward vacuum box on distributor. Close both connections on carburetor and on vacuum box blind. A prerequisite is that the engine is otherwise perfectly tuned and in order.