

Model	190 (W201)	190 (W201)	200/200T (W123)	200/200T (W123)	200 (W124)
Model date	1982-90	1982-90	1980-85	1980-85	1985-86
Engine version	2,0/66 kW	2,0/66 kW	2,0/80 kW	2,0/80 kW	2,0/80 kW
Engine number/code	102.921/4	102.921/4	M 102.920/939	M 102.920/939	102.922
Transmission type	MT/AT	AT	MT	AT/AC	MT/AT
Carb. fitment date	1982-90	1982-88	1980-85	1980-85	1985-86
Carburettor type	175 CDT	175 CDT	175 CDT	175 CDT	175 CDT
Identification No.	000 070 70 04	00 070 75 04	001 070 63 04	001 070 64 04	002 070 12 04/1104

ADJUSTMENTS, Carburettor Installed

1. TAMPERPROOFING

Tamperproof seals are fitted to the idle adjustment screws to prevent indiscriminate tampering with the settings. If adjustment of any of these is necessary they can be removed using pliers or a screwdriver. New seals should be fitted once the adjustments have been completed.

The sealing cap at the idle cut-off valve secures the access guard collar which fits around the upper part of the valve (Fig. 1). Once the cap is removed, the collar can then be taken off.

2. IDLE ADJUSTMENT

2.1 Preparatory Conditions

- All other engine functions (valve clearances, ignition system) correctly adjusted. See 'Introduction'.
- Induction system without leaks.
- Engine at normal operating temperature (oil temp. 75 - 85°C).
- Air cleaner in position; crankcase breather hose connected.
- All electrical components switched off. Also air conditioning, where applicable.

- Disconnect plug to coolant temperature switch and connect to a suitable earth. This ensures temperature will not exceed 100°C.
- Oil level in damper reservoir up to bottom edge of threads at filler hole.
- Selector lever in position 'P' on auto. trans. models.
- Test instruments (rev-counter and exhaust gas analyser) connected in accordance with manufacturer's instructions.

2.2 Idle Speed & CO Level

**Specification: 800 ± 50 rpm
1,0 ± 0,5 % CO**

Check that idle speed screw (A, Fig. 2) rests against throttle stop when engine idling.

Check that plunger of vacuum governor is not in contact with lever (D, Fig. 7). See 2.6 if adjustment required.

Check idle speed as follows:

- Run engine at fast idle for about half a minute. Allow engine to idle and note idle speed.
- If outside specified limits, adjust by turning idle speed adjusting screw (A, Fig. 2).
- Check idle CO content level.
- If outside specified limits, slacken locknut (A, Fig. 3) and turn idle shut-off valve (B) in appropriate direction to achieve correct setting.

Screwing valve out will richen mixture, in will weaken it. Retighten locknut.

- Run engine at fast idle speed for about half a minute, and recheck settings.

Special Note:

After each adjustment, accelerate engine briefly so that jet needle can adjust its position, then recheck settings.

2.3 Throttle Linkage

It is important to check the linkage connection with the throttle lever. The connection must be made without tension to avoid affecting throttle settings.

On automatic models, this check must be made with the engine running and the telescopic link fully extended. On all air-conditioned models, the check must be made with the engine running.

2.4 Cruise Control Adjustment

With engine running:

- Release actuator rod (B, Fig. 4) from lever (A).
- Push lever (B) clockwise to idle position, and check that ball on lever aligns with socket on end of rod.
- If not, slacken nut (C) and turn rod (B) to align.
- When aligned, screw rod (B) into nut, tighten nut (C) and reattach rod to lever.

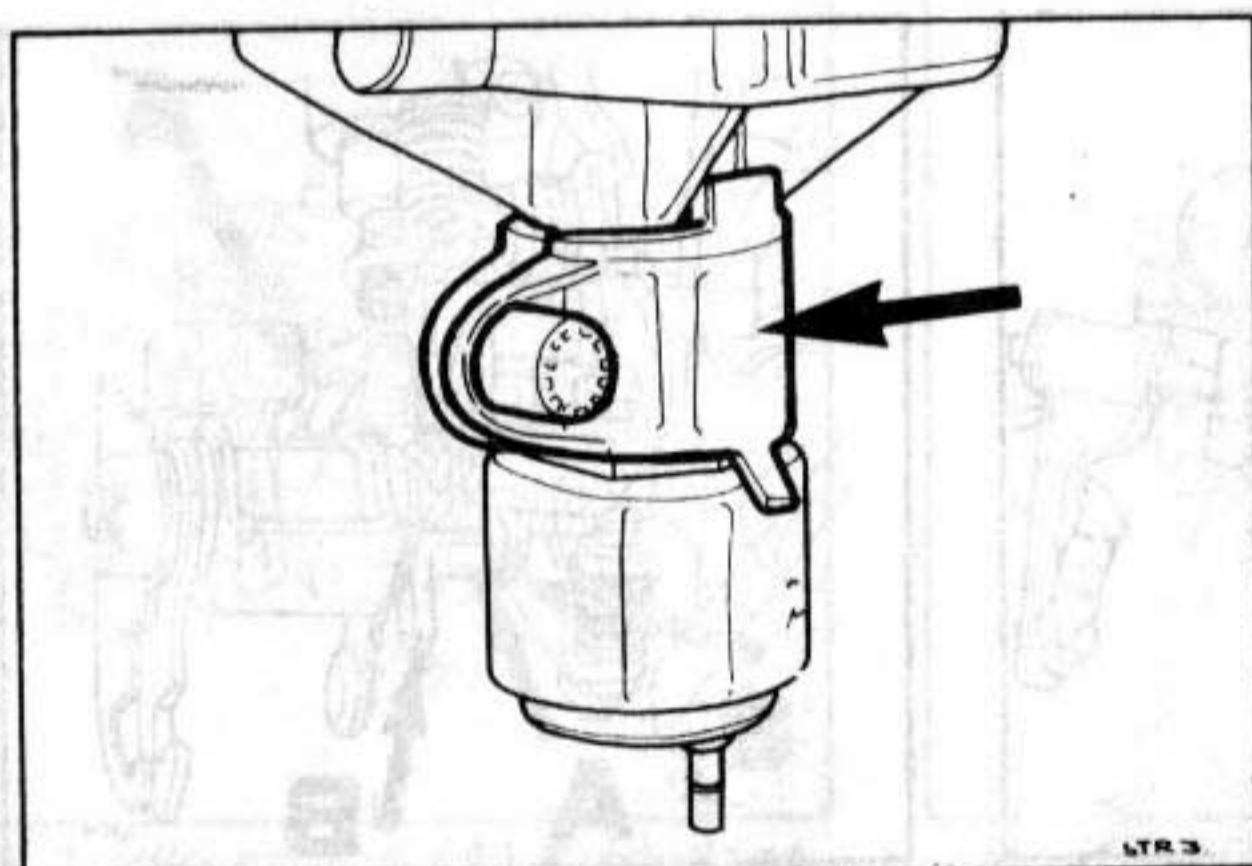


Fig. 1 Guard collar cut-off valve

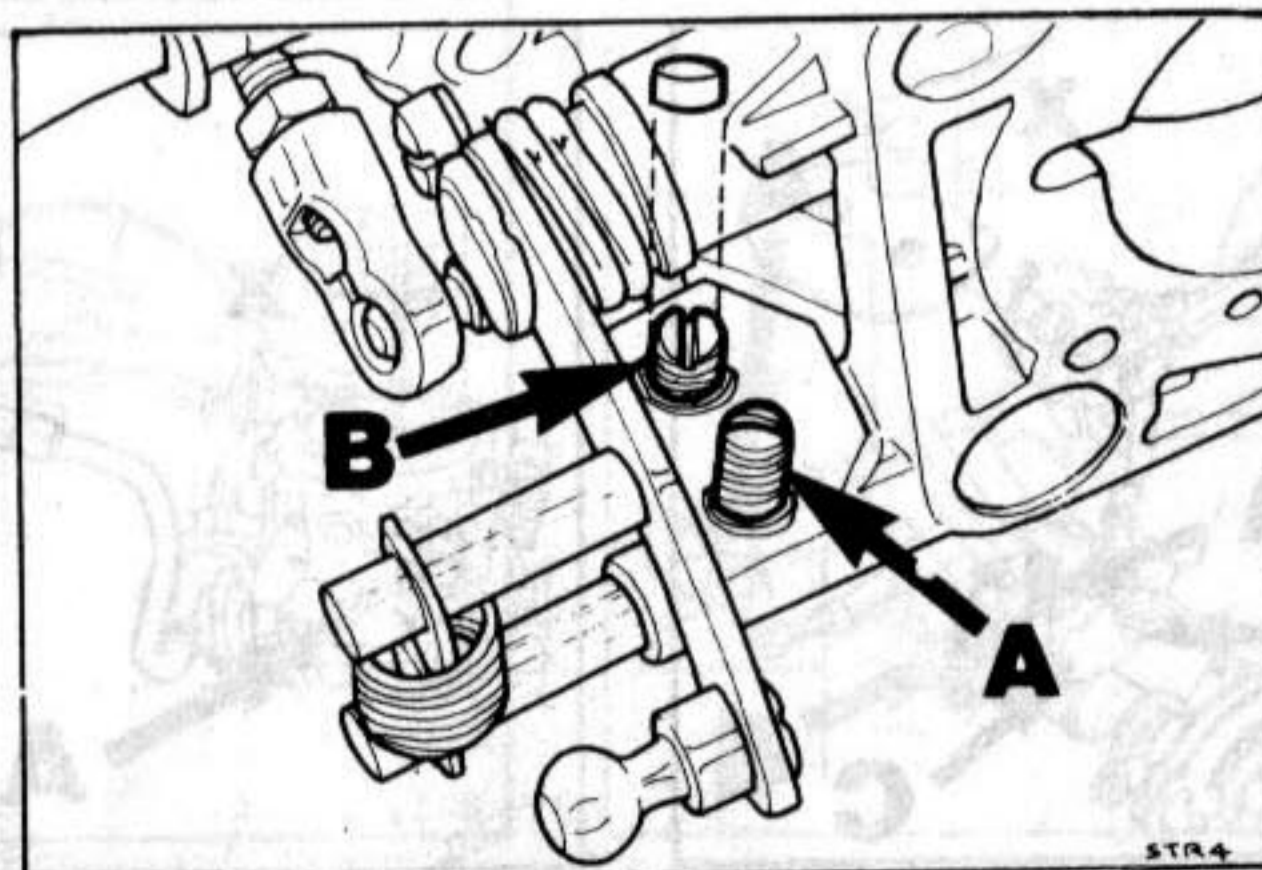


Fig. 2 Idle adjustment screws

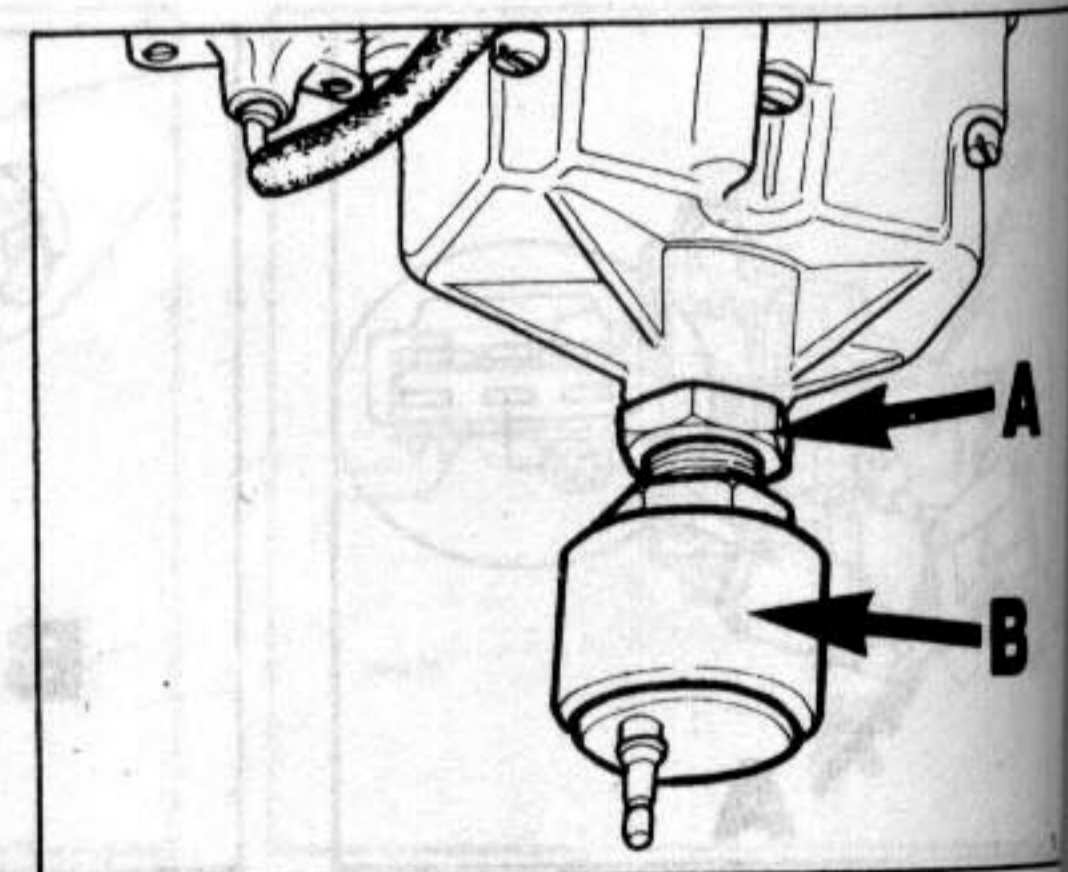


Fig. 3 Idle mixture adjustment

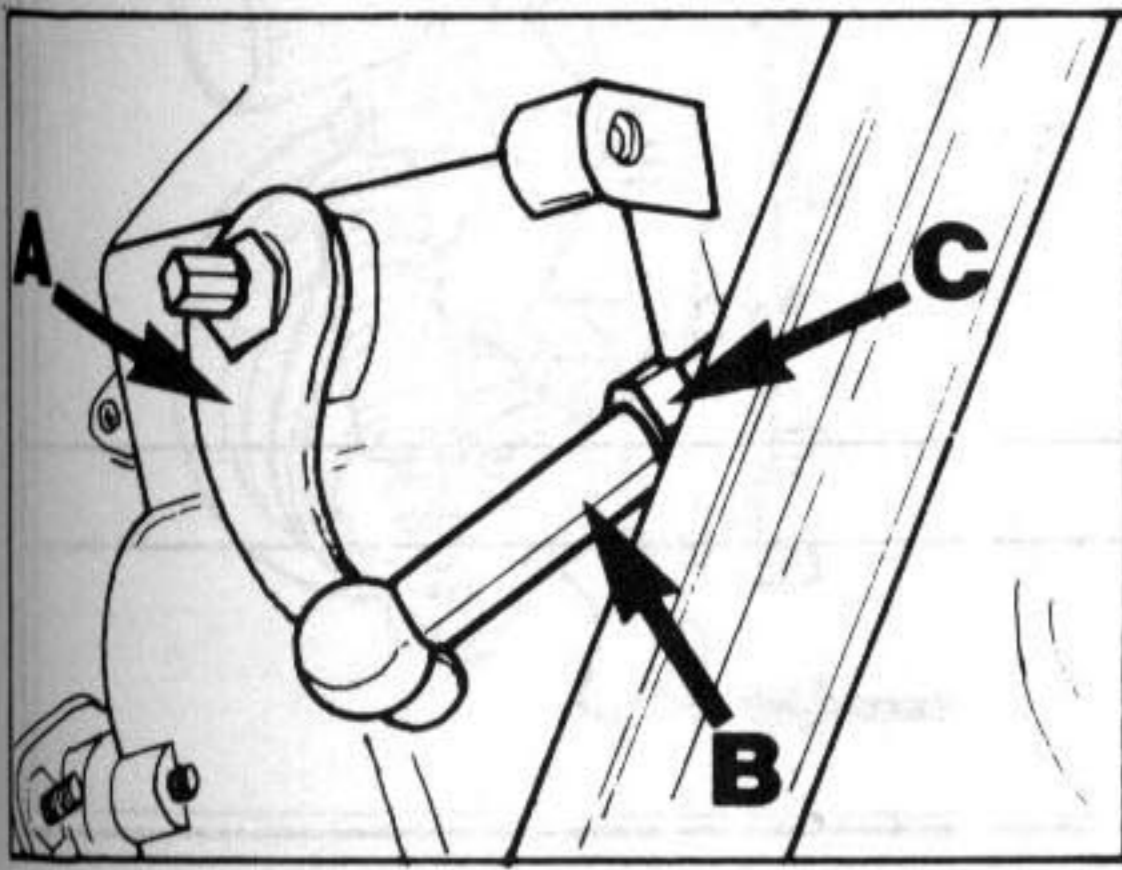


Fig. 4 Cruise control adjustment

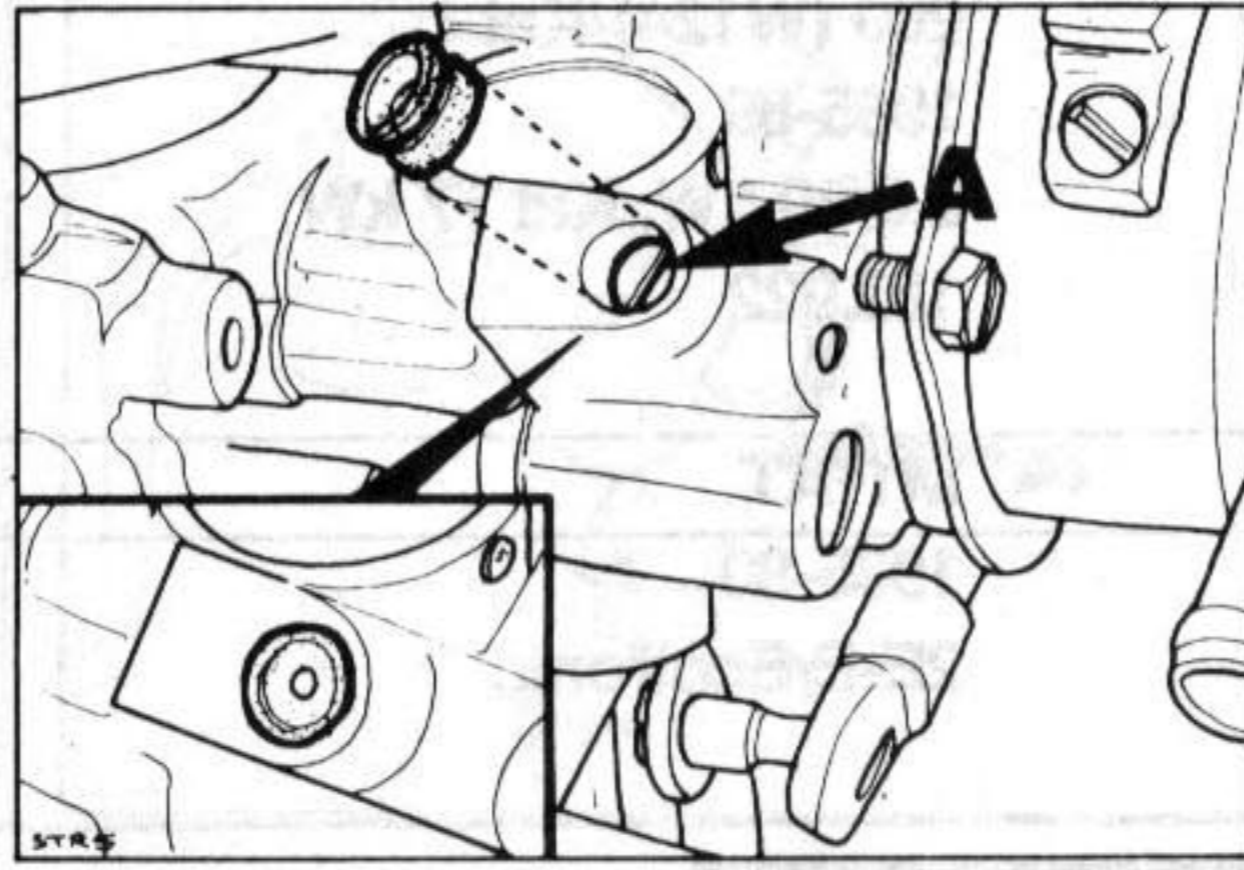


Fig. 6 Auxiliary air adjusting screw

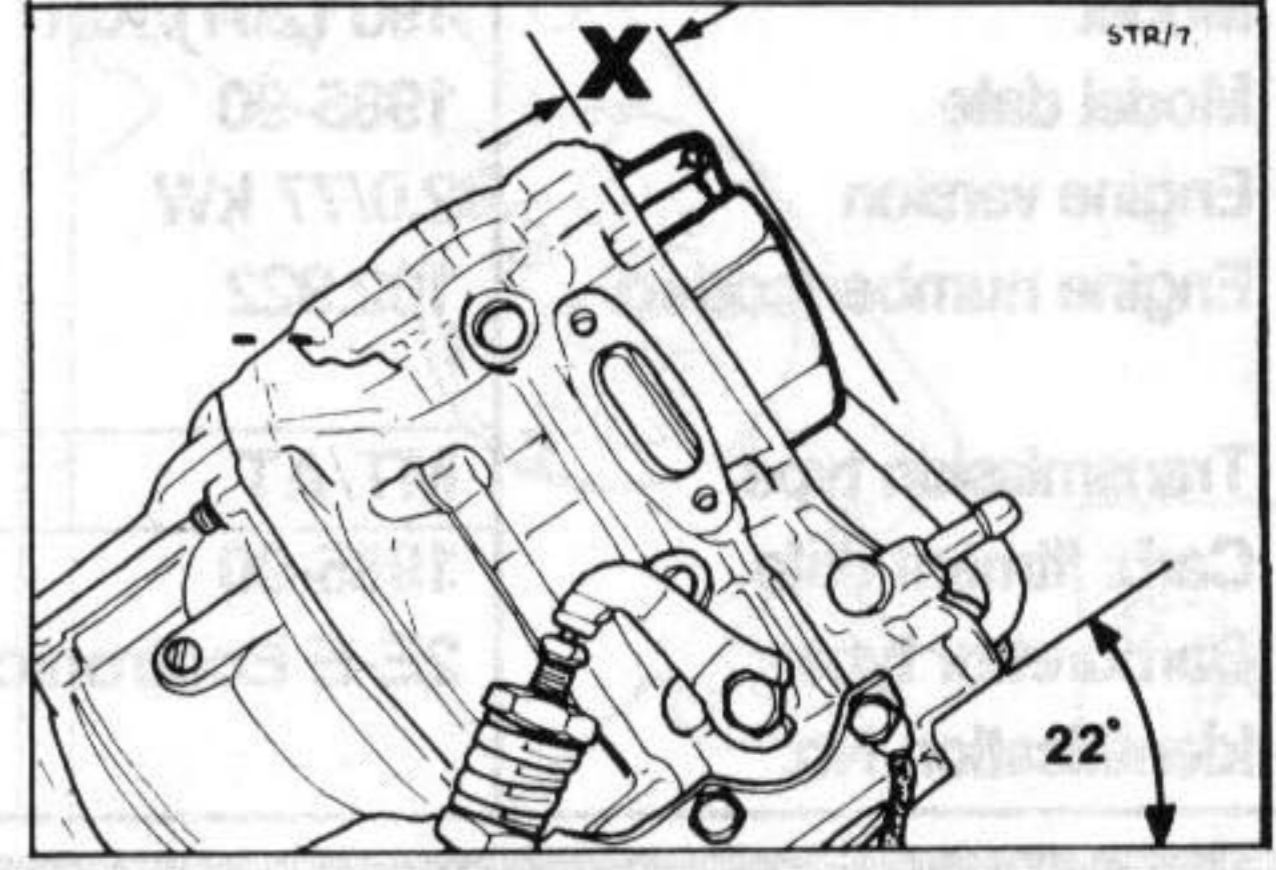


Fig. 8 Checking float level

2.5 Fast Idle Adjustment

Specification: 1700 ± 100 rpm
7 ± 1 % CO

- a) Ensure that mark on choke cover is in alignment with mark on choke housing.
- b) With idle speed correctly adjusted, run engine at idle.
- c) Remove plastic sealing strip from slot in top of choke housing (A, Fig. 5).
- d) Increase engine speed to 2500 rpm by lifting throttle valve lever.
- e) Insert small screwdriver through slot in top of choke housing and carefully push drive lever (inside choke housing) downwards until noticeable resistance felt.
- f) Release throttle valve lever, but continue holding drive lever against stop. This will set choke lever on second highest notch of stepped cam and set choke valve in pull-down position.
- g) Note engine fast idle speed. Adjust if necessary by turning fast idle screw (B, Fig. 2).
- h) With engine running at specified fast idle speed, note CO content level.
- i) If outside specified limits turn screw (A, Fig. 6) to obtain correct setting.
- j) Release choke drive lever, raise engine speed briefly, then recheck fast idle speed and CO content level. Adjust if necessary.

2.6 Vacuum Governor (Fig. 7)

Specification: 'X' = 0,5 mm
-1985 = 1250±50 rpm
1985- = 1400±50 rpm

With engine idling:

- a) Disconnect vacuum hose (A, Fig. 7) and check engine speed rises as per specification.
- b) If necessary, adjust speed by turning screw (B).
- c) Reconnect vacuum hose (D) and check clearance (X).
- d) If necessary, adjust clearance by means of large adjusting nut (C) at lower end of compression spring.
- e) Engage automatic transmission in Drive, turn power steering onto full lock and check that engine continues to idle smoothly.
- f) If necessary, readjust idle speed with nut (C).

If air-conditioning fitted, switch system on, and again run engine with transmission in Drive, and steering turned onto full lock. The vacuum governor should fully extend to increase the throttle opening.

ADJUSTMENTS, Carburettor Removed

3. FLOAT LEVEL

Specification: X = 18-19 mm

- a) With float chamber removed, hold carburettor at approx. 22° and measure distance (X, Fig. 8) of each float.

Tab on float arm must rest squarely on needle valve without depressing ball.

- b) If setting is outside specified limits, first check that sealing ring under float needle valve is of specified thickness (1,5 mm).
- c) To adjust, remove float and bend tab (A, Fig. 9) on float arm which rests against needle valve. Ensure tab rests squarely on needle valve and both floats are at same level.

Special Note:

A special gauge for measuring the float height can be obtained from a Stromberg main agent.

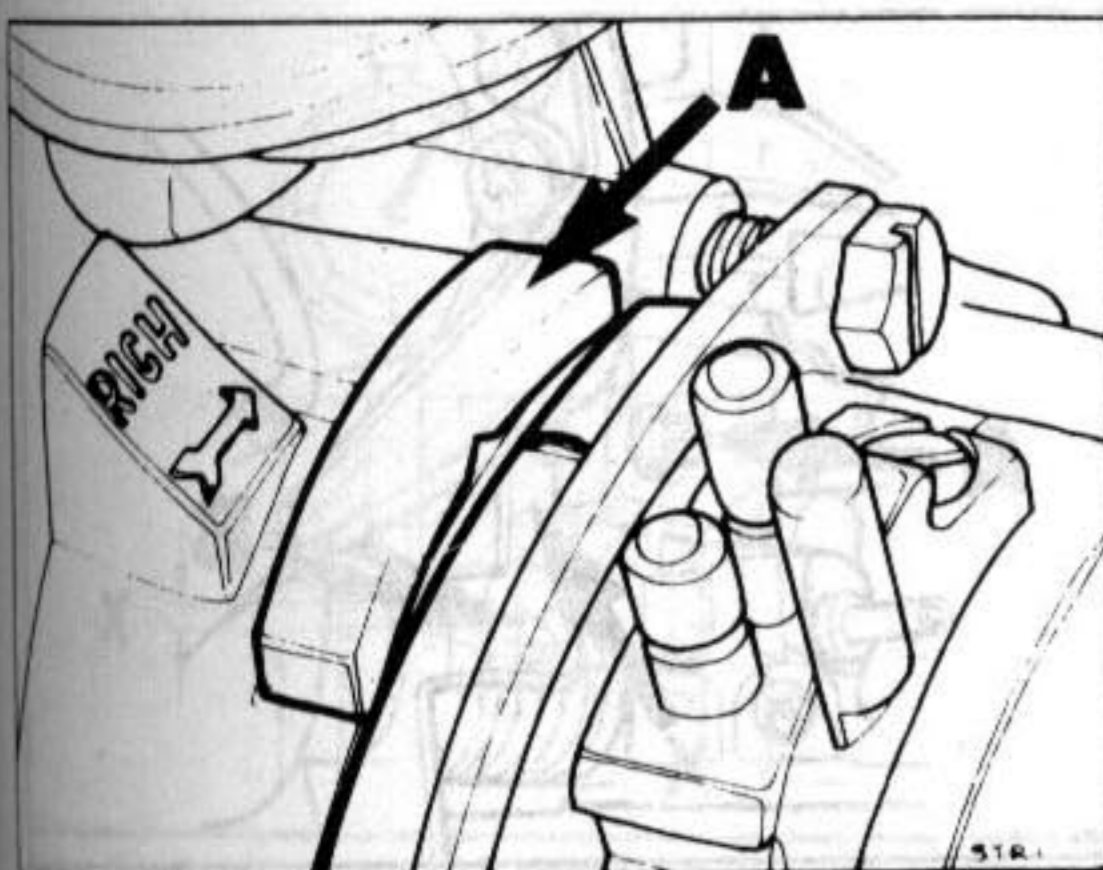


Fig. 5 Plastic cover at choke housing

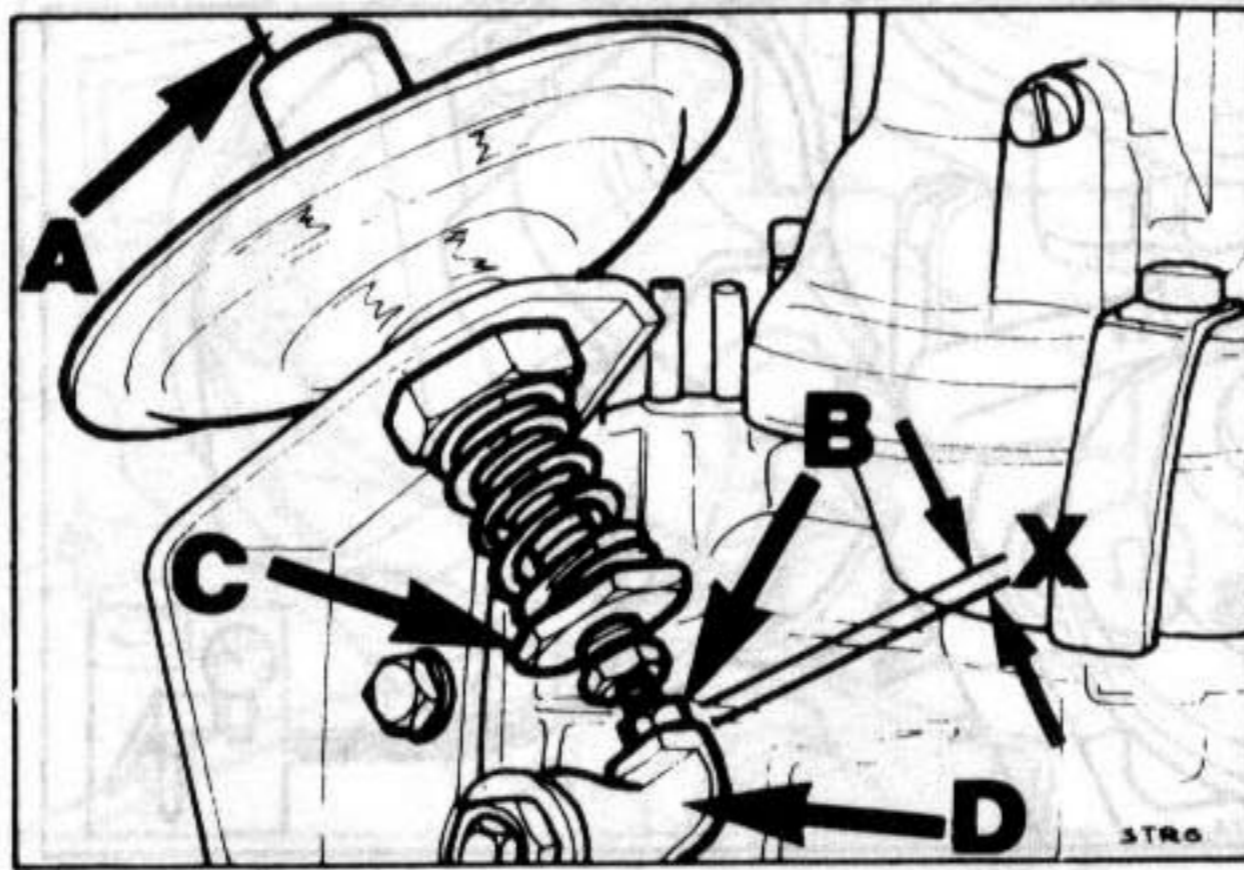


Fig. 7 Vacuum governor adjustment

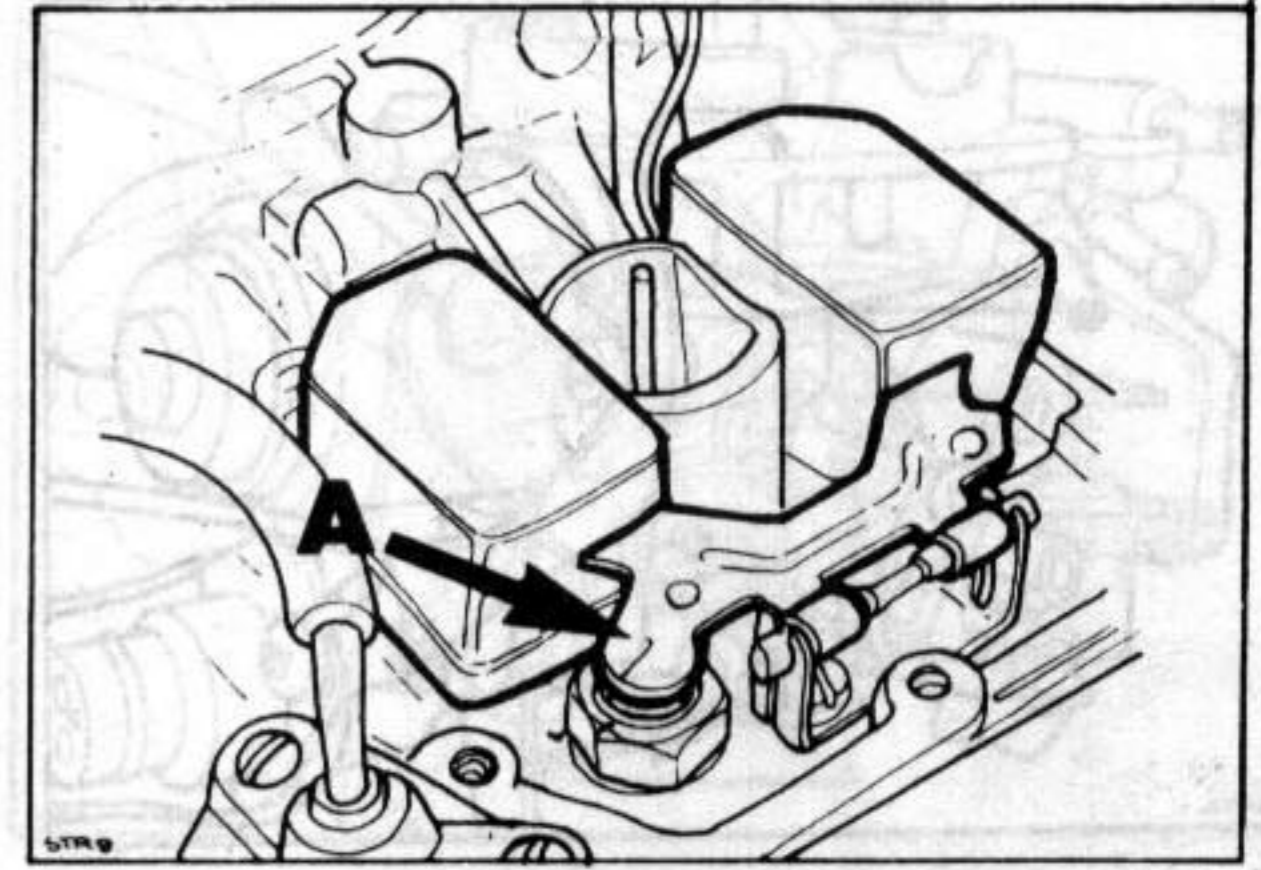


Fig. 9 Float level adjustment

Model	190 (201)/Kat	200 (W124)/Kat
Model date	1985-90	1985-89
Engine version	2,0/77 kW	2,0/80 kW, Kat 77 kW
Engine number/code	102.922	102.922
Transmission type	MT/AT	MT/AT
Carb. fitment date	1985-90	1985-89
Carburettor type	2E-E Ecotronic	2E-E Ecotronic
Identification No.		

Electrical connections - See Wiring diagrams at back of manual

ADJUSTMENTS, Carburettor Installed

1. GENERAL

The 2E-E carburettor is completely controlled by an ECU (Electronic Control Unit), located in the engine compartment. Before checking mechanical parts, look for faults in the electrical system: check plug connections for humidity, corrosion and security. The ECU should be checked with an engine test unit according to manufacturer's specifications. An easier method is to substitute the ECU with a unit which is known to be good. Idle speed cannot be adjusted as it is controlled by the ECU. Check all moving components for free movement. Fuel level cannot be adjusted and depends on accurate float weight.

2. IDLE ADJUSTMENTS

2.1 Preparatory Conditions

- All other engine functions (valve clearances, ignition system) correctly adjusted. See Introduction.
- Induction system without leaks.
- Engine at normal operating temperature (oil temperature 60-80°C).
- Air cleaner in position with clean element.
- Air intake pre-heat device functioning correctly.
- Exhaust system without leaks.
- All electrical components switched off.

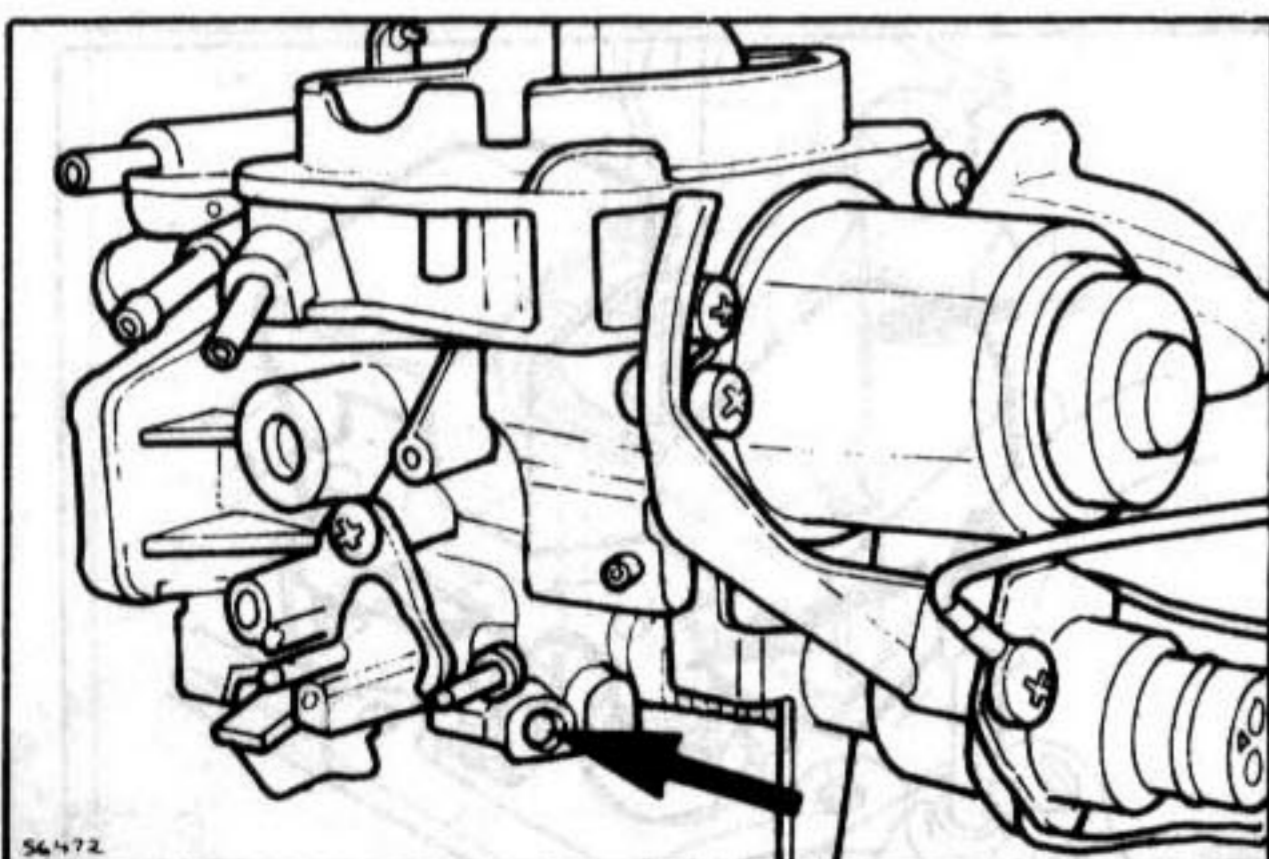


Fig. 1 Idle mixture adjustment

- Test instruments (rev-counter and exhaust gas analyser) connected in accordance with manufacturer's instructions.

2.2 CO Level

Specification: 1,0±0,5%CO

The CO check must be carried out immediately after reaching the specified engine oil temperature.

- a) Check CO level as follows: Run engine at 3000 rpm for about one minute. Allow engine to idle and note CO level.
- b) If outside specified limit adjust with mixture screw (Fig. 1).

3. THROTTLE VALVE REGULATOR

Specification: X = 2,0±0,05 mm

Check when idling und warm-up behaviour are unsatisfactory.

- a) Switch on ignition.
- b) Connect vacuum pump to evacuating valve (Fig. 2) and maintain vacuum of 250 mbar.
- c) In this position check clearance (X, Fig. 3) with suitable gauge. The throttle stop screw setting should not be disturbed.
- d) If clearance is outside specified limit adjust by means of a new shear screw (Fig. 4) and break off head of screw when adjustment is completed.

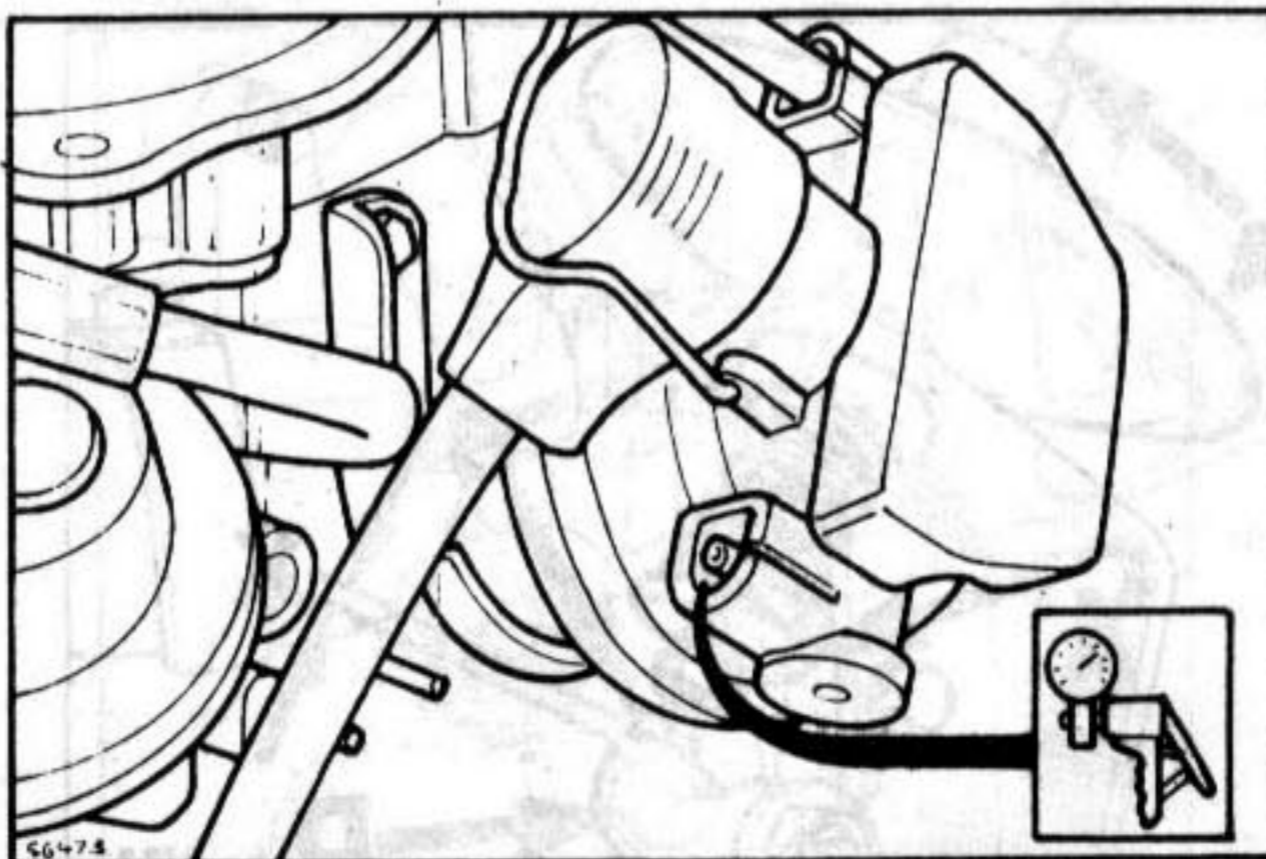


Fig. 2 Vacuum connection

ADJUSTMENTS, Carburettor Removed

4. THROTTLE VALVE BASIC SETTING - STAGE II

Specification: X = 0,02±0,01 mm

The throttle stop screw is sealed and should not normally require adjustment. The following adjustment should only be necessary if the setting has been inadvertently altered.

- Use special gauge (Pierburg tool) for throttle valve adjustment.

 - a) Unscrew throttle stop screw until there is a gap between stop screw and carburettor body.
 - b) With special tool in position adjust dimension X (Fig. 5) with throttle stop screw.

Special Note:

Stage I throttle valve cannot be adjusted.

5. THROTTLE VALVE INTERLOCK - STAGE II

**Specification: Y = 0,8±0,2 mm
Z = 0,4±0,2 mm**

- a) Bring throttle valve into overrun position by connecting a 12V supply to terminals 2 and 8 (Fig. 8).
- b) Connect vacuum pump to evacuating valve of throttle regulator (Fig. 8) and apply vacuum of 250 mbar until throttle regulator pushrod is fully retracted.

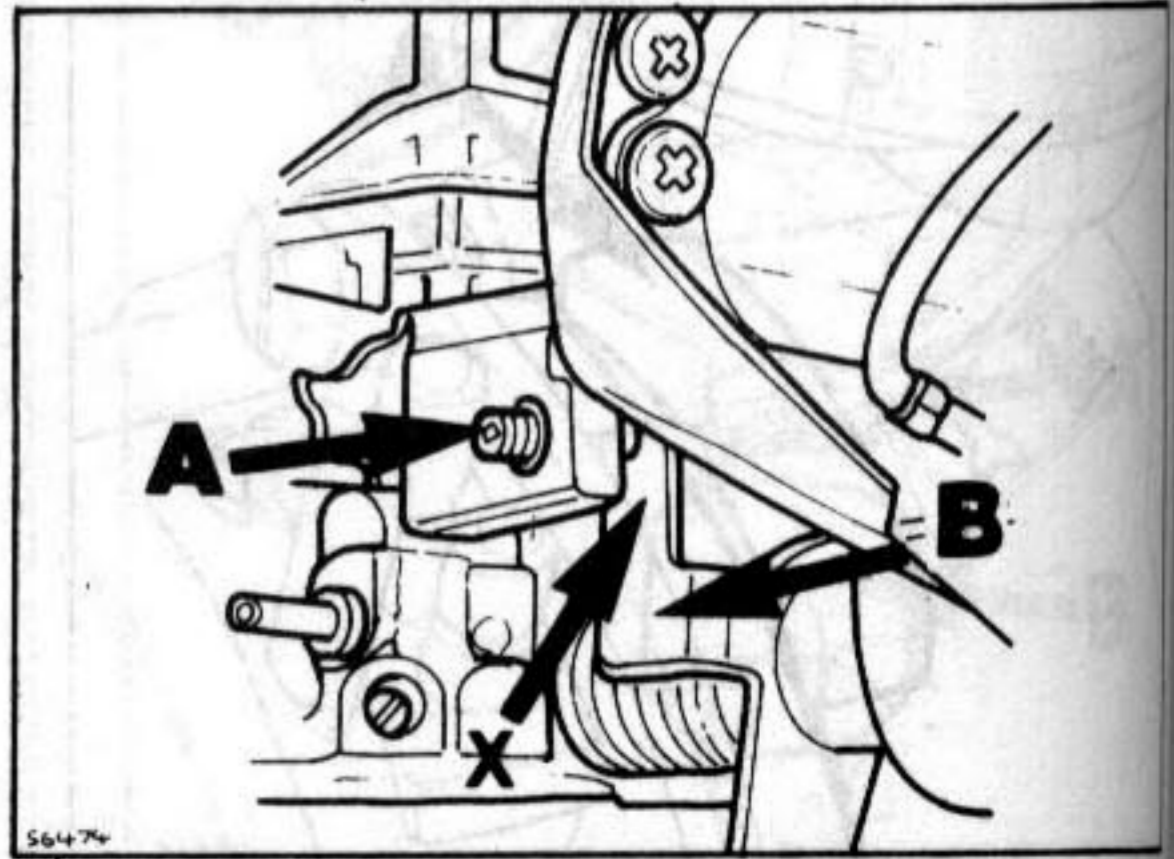


Fig. 3 Throttle stop screw

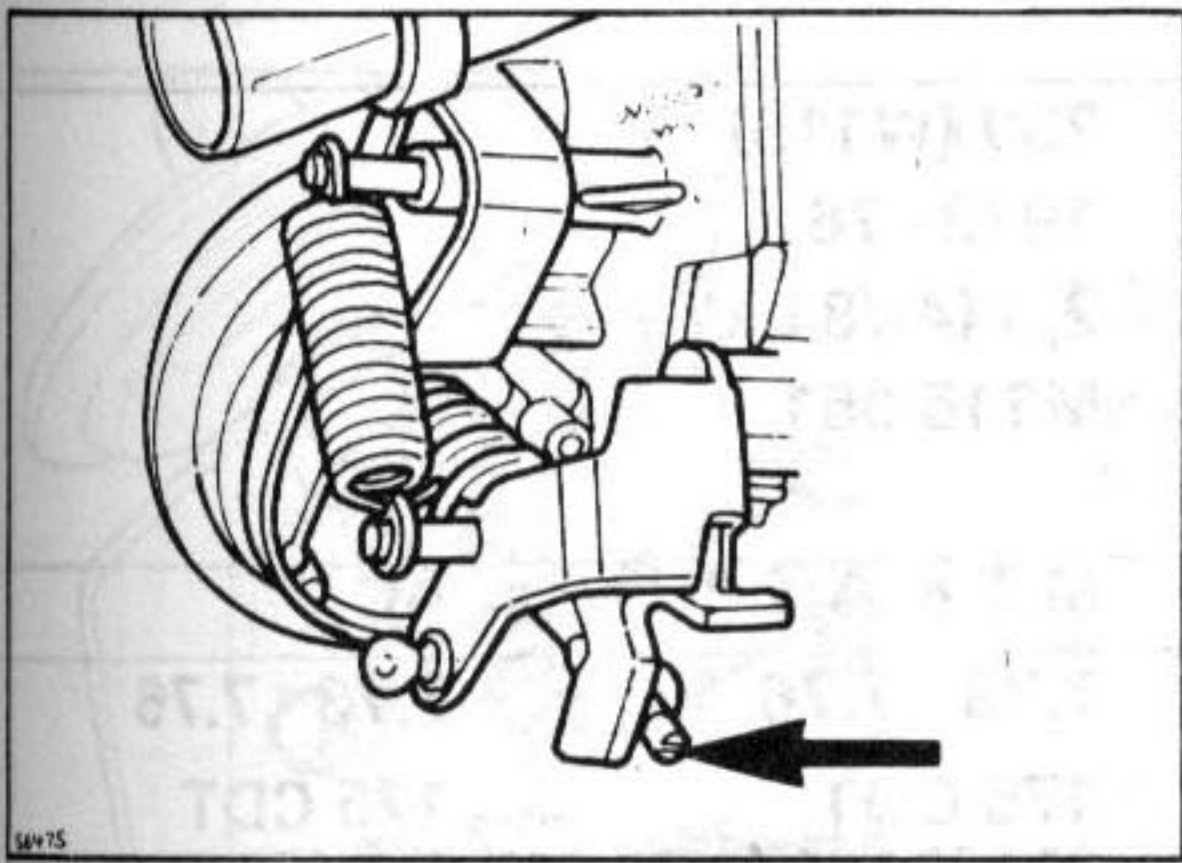


Fig. 4 Location of shear screw

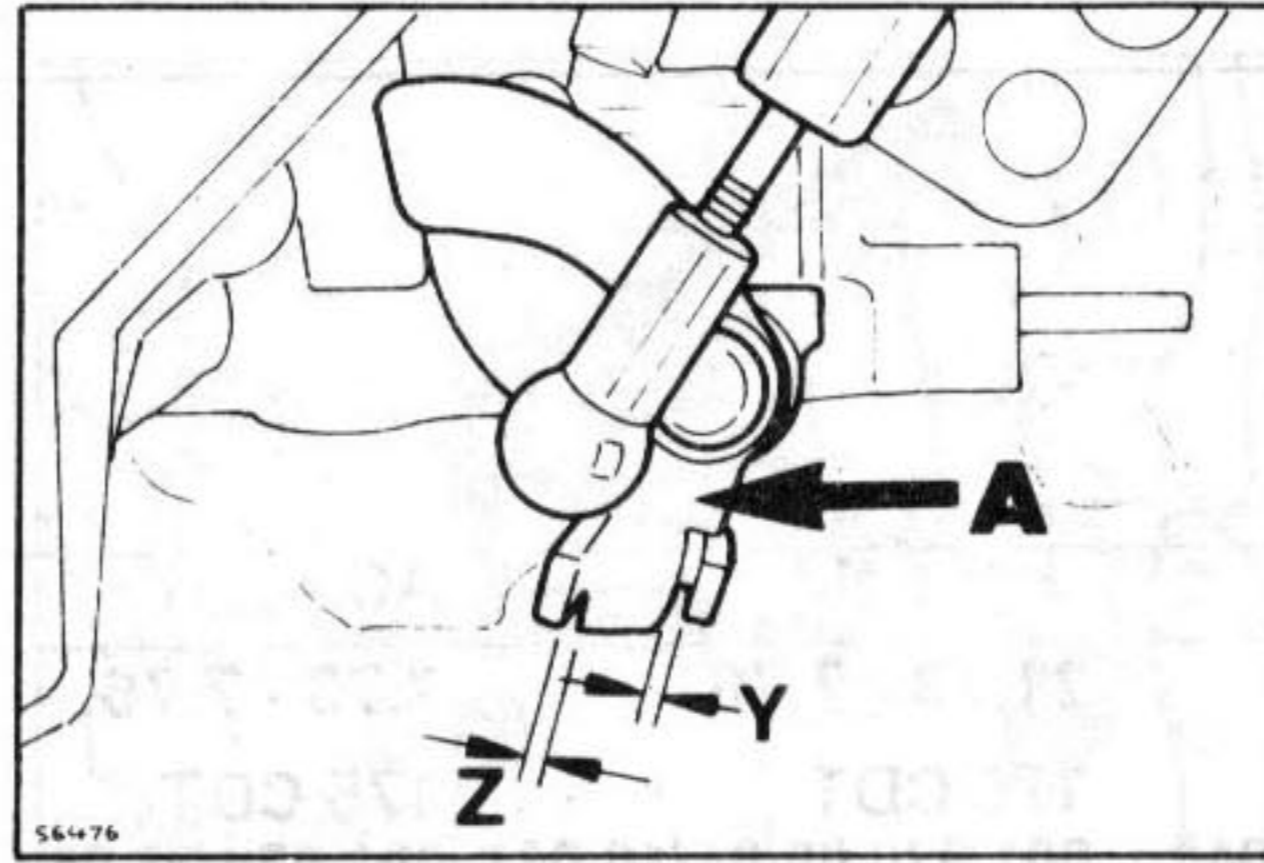


Fig. 6 Interlock - Stage II

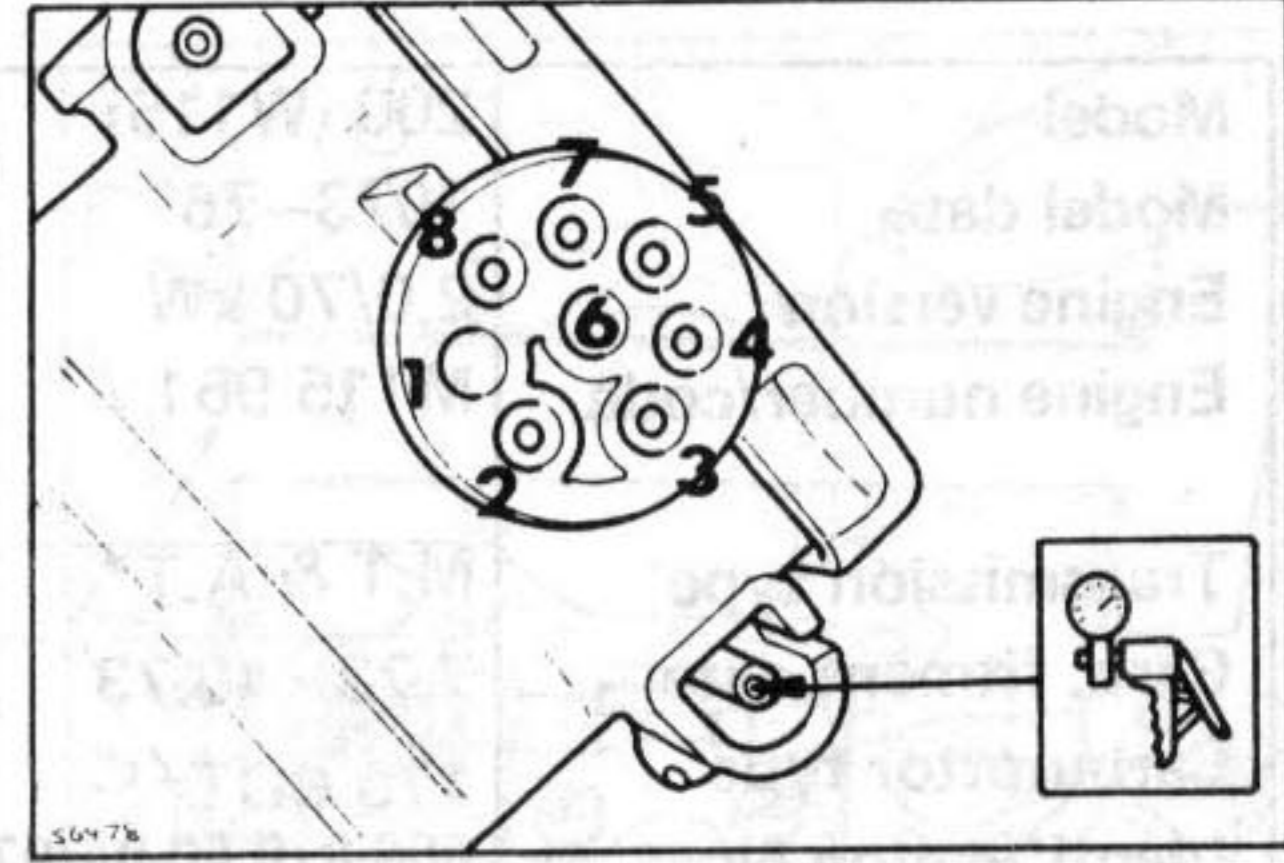


Fig. 8 Throttle valve regulator

- c) Ensure throttle lever (B, Fig. 3) is on stop screw (A).
- d) Measure gaps Y and Z at narrowest point (Fig. 6).
- d) If outside specified limits, adjust by carefully bending fork (A, Fig. 6).

Nominal value: 20-70 ohms.
 Measure potentiometer resistance between

- a) Terminals 4 and 5 - 1,4-2,6 k ohms.
- b) Terminals 4 and 7: Fully retract throttle regulator by applying vacuum of 250 mbar to evacuating valve (see section 3). Resistance value should drop gradually.
 Nominal value: 400 ohms min., 1,4-2,4 k ohms max.

6. ELECTRICAL COMPONENT CHECKS

Special Note:

In order to protect the electrical circuit from damage, a 1A in-line fuse should be installed in the battery positive test lead.
 In addition, terminals 4, 5, and 7 must not come into contact with 12v supply.

6.1 Pre-Throttle Valve

Measure resistance as shown in Fig. 7a. Nominal value: 0,9-1,7 ohms.
 Measure resistance as shown in Fig. 7b. Nominal value: infinity ohms.

6.2 Throttle Valve Regulator (Fig. 8)

Measure evacuating valve resistance between terminals 2 & 3 and ventilating valve resistance between terminals 2 & 8.

6.3 Dual Temperature Sensor (Coolant)

Measure resistance with plug removed (Fig. 9).
 Nominal values:
 at 20°C = 2-3 k ohms
 at 80°C = 290-370 ohms

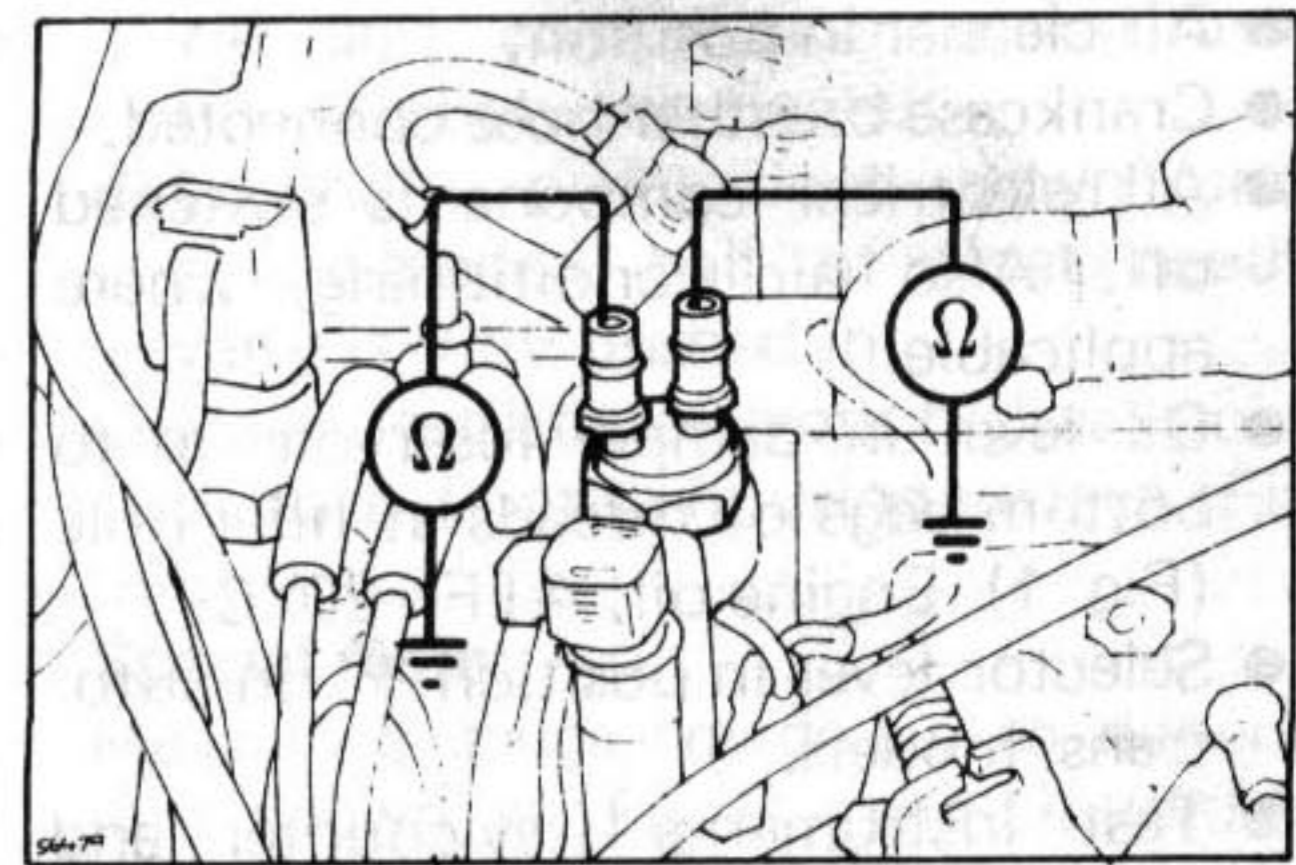


Fig. 9 Dual temperature sensor

6.4 Main Throttle Potentiometer

Measure resistance as shown in Fig. 10a with plug removed.
 Nominal value: 1,4-2,6 ohms
 Bring throttle valve into overrun position as described in section 5. Measure resistance as shown in Fig. 10b. Slowly open throttle valve: the resistance should increase gradually.
 Nominal value: 270 ohms minimum, 1,4-2,6 ohms maximum.

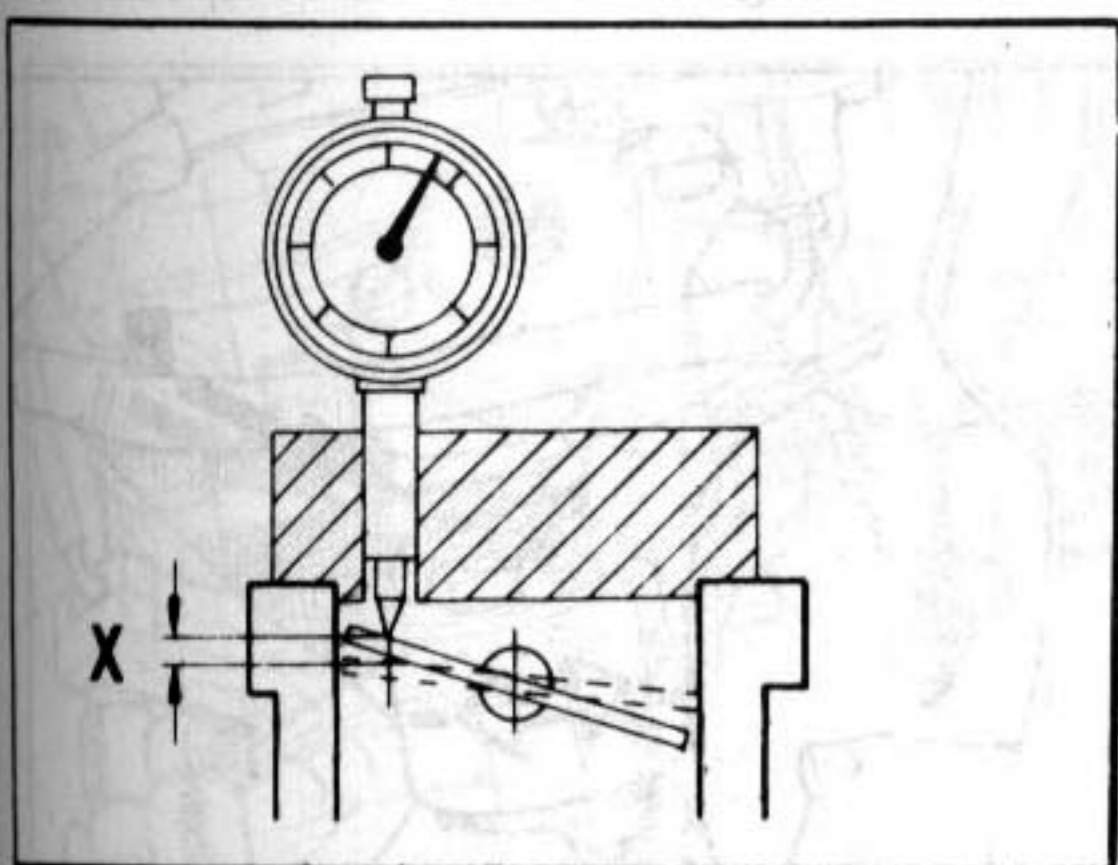


Fig. 5 Throttle valve basic setting

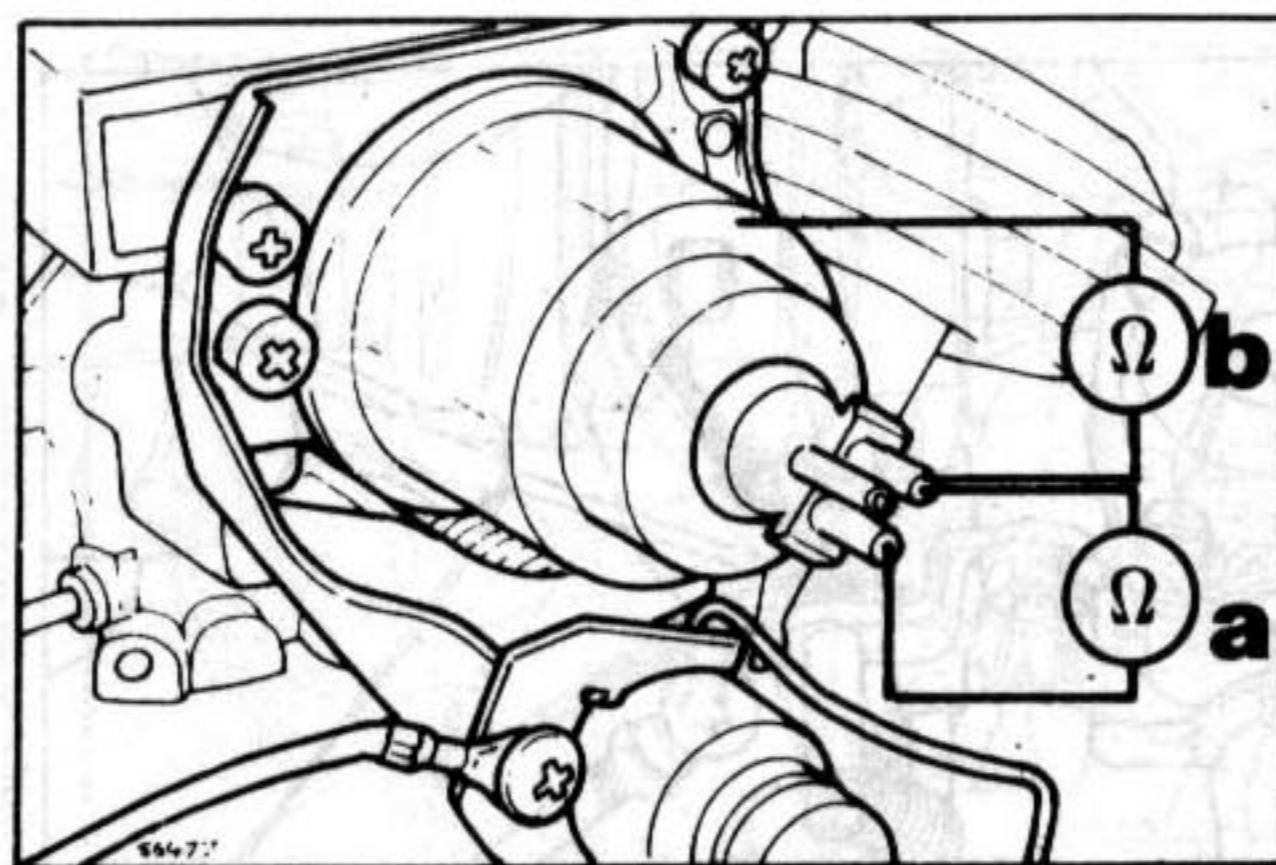


Fig. 7 Pre-throttle valve

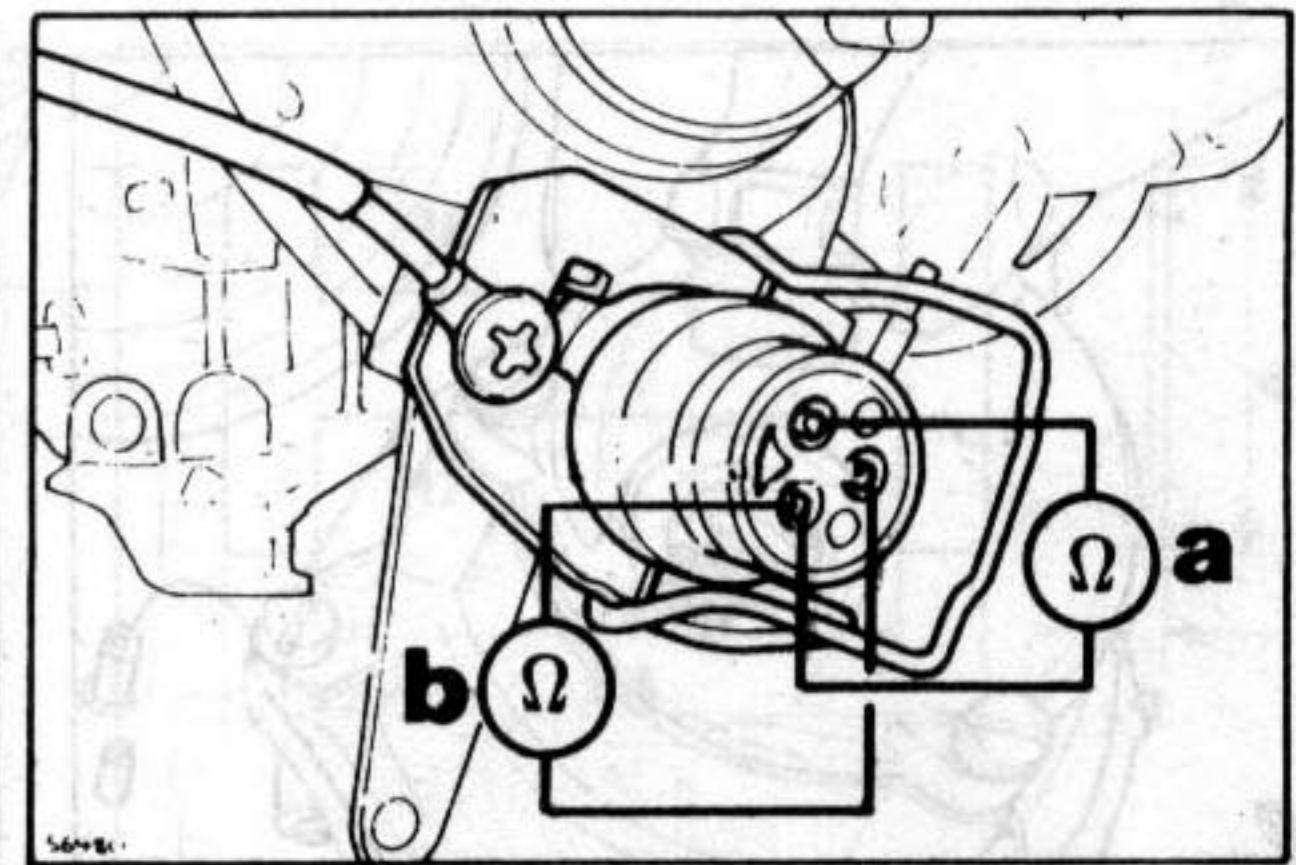


Fig. 10 Main throttle potentiometer

Model	200 (W115)			230 (W115)	
Model date	1973-76			1973-76	
Engine version	2,0/70 kW			2,3 (4)/81 kW	
Engine number/code	M115 951			M115 951	
Transmission type	M.T & A.T*		AC	M.T & A.T *	AC
Carb. fitment date	7.73 - 10.73	11.73 - 7.76	7.73 - 7.76	7.73 - 7.76	7.73 - 7.76
Carburettor type	175 CDT	175 CDT	175 CDT	175 CDT	175 CDT
Identification No.	000 070 96 04/97 04*	001 070 09 04/10 04*	001 070 01 04	000 070 96 04/97 04*	001 070 01 04

ADJUSTMENTS, Carburettor Installed

1. IDLE ADJUSTMENT

1.1 Preparatory Conditions

- All other engine functions (valve clearances, ignition system) correctly adjusted. See 'Introduction'.
- Induction system without leaks.
- Engine at normal operating temperature (oil temp. 60-80°C).
- Air cleaner in position.
- Crankcase breather hose connected.
- All electrical components switched off. Also air conditioning, where applicable.
- Oil level in damper reservoir up to bottom edge of threads at filler hole (Fig. 1). Engine oil; ATF - 20°C.
- Selector lever in position 'P' on auto. trans. models.
- Test instruments (rev-counter and exhaust gas analyser) connected in accordance with manufacturer's instructions.

1.2 Idle Speed & CO Level

Specification: 850 ± 50 rpm
1,75 ± 0,75 % CO

- Check that throttle lever at carburettor rests against throttle stop when in released position.
- Also check that plunger of throttle damper is not in contact with actuating lever on throttle shaft (Fig. 5). If necessary, slacken damper compression spring with adjustment nut (C) to obtain required clearance.

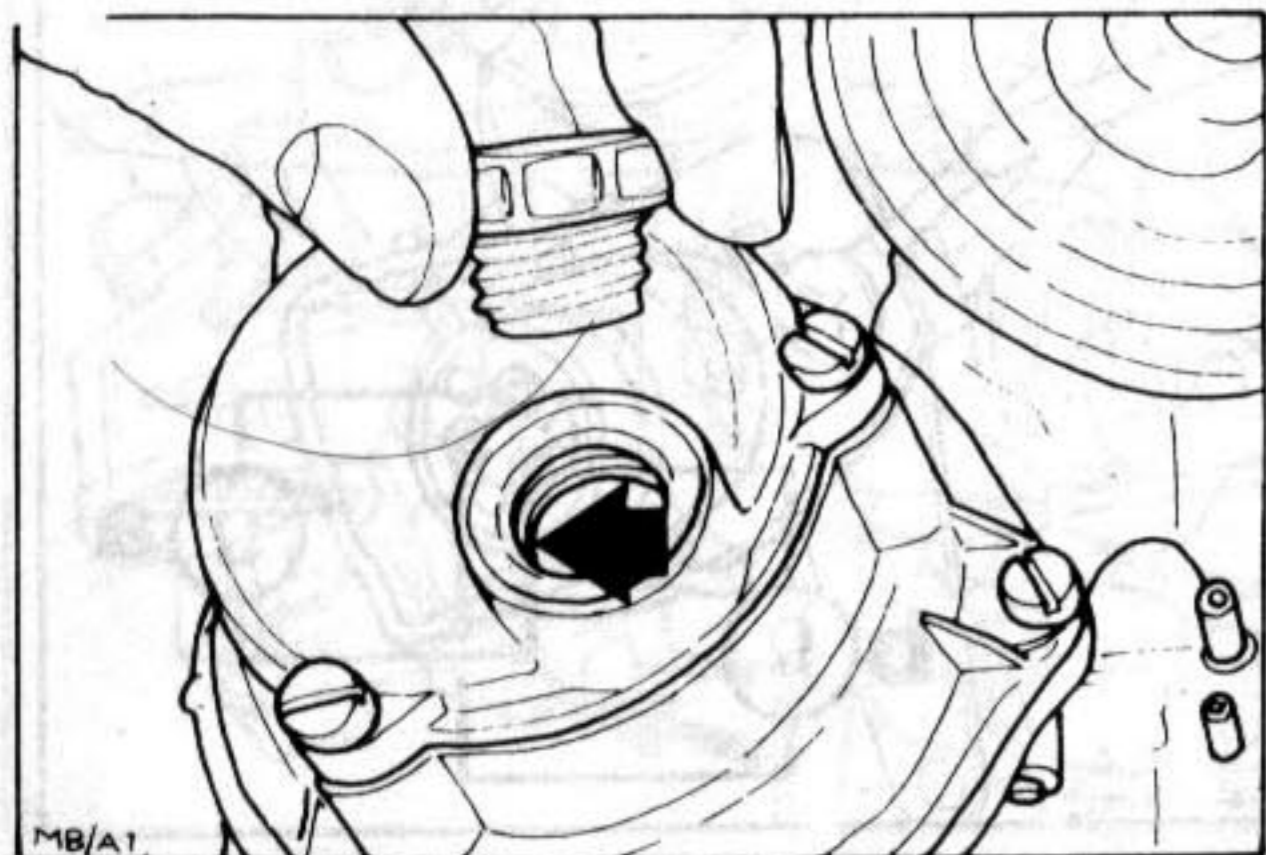


Fig. 1 Checking damper oil level

- Run engine at fast idle for about half a minute. Allow engine to idle and note idle speed.
- If outside specified limits, adjust by turning idle speed adjustment screw (A) at throttle lever (Fig. 2).
- Disconnect crankcase breather hose from air cleaner.
- Again run engine at fast idle for about half a minute, then allow to idle and note idle CO content level.
- If outside specified limits, adjust by slackening locknut (B) at idle speed shut-off valve on underside of carburettor and turning valve in appropriate direction (Fig. 3). Screwing valve out will richen mixture, in will weaken it.

Special Note:

After each adjustment, accelerate engine briefly so that jet needle can readjust its position, then recheck setting.

- Again run engine at fast idle speed for about half a minute, then recheck settings.
- Reconnect crankcase breather hose.
- On manual models, check adjustment of throttle linkage regulating rod. Roller on bellcrank lever at lower end of throttle linkage rod must rest free of tension against end stop of inner gate lever. Linkage rod has right and left-hand threads to permit adjustment of length.
- On automatic models, check adjustment of regulating rod with engine running. It should be possible to attach rod free of tension with telescopic section of rod in fully extend-

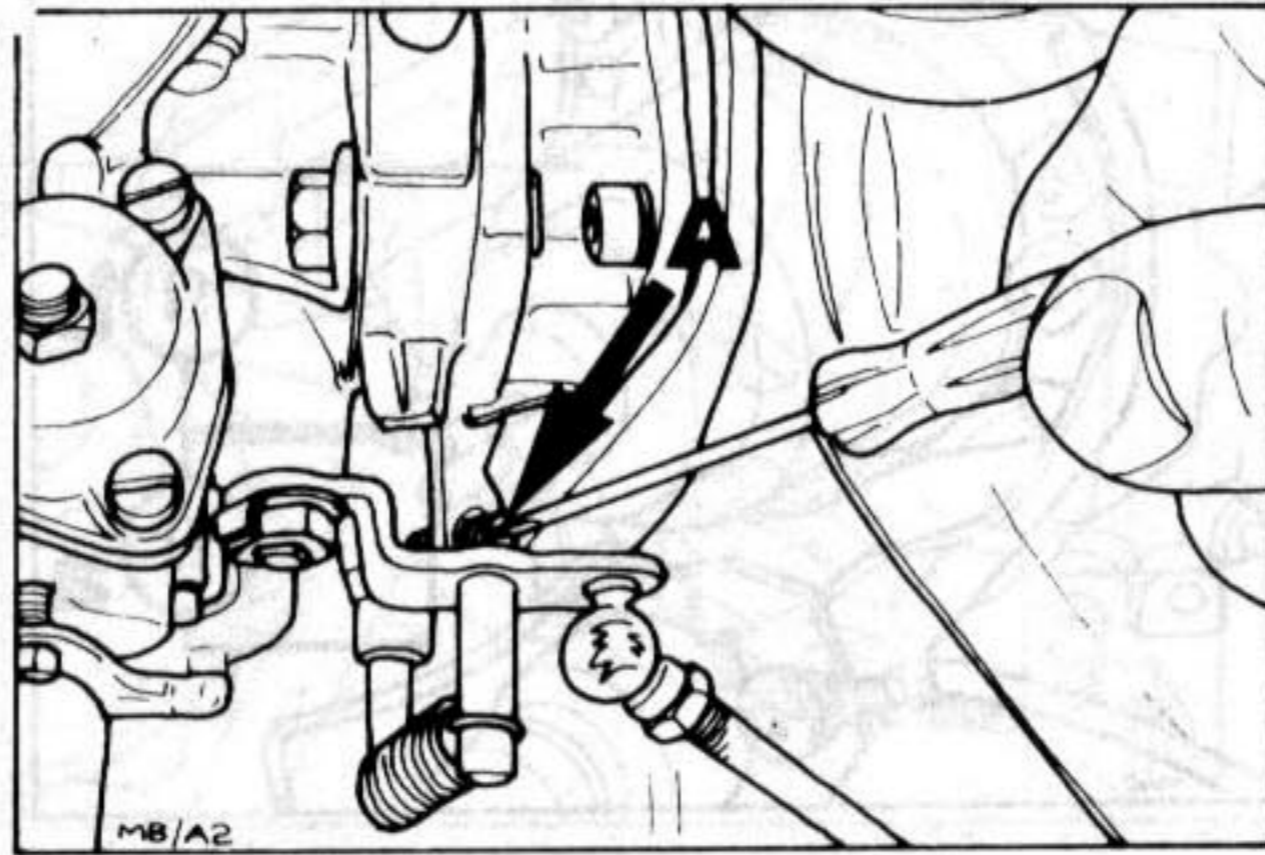


Fig. 2 Idle speed adjustment screw

- ed position. Again rod length is adjustable, with ball socket.
- On models with air conditioning, regulating rod adjustment is checked in a similar manner to manual models, but with the engine running.

1.3 Fast Idle Adjustment

Specification: 1900 ± 100 rpm
6 - 7 % CO

- Ensure that mark on choke cover is in alignment with front mark on choke housing (Fig. 5).
- With idle speed correctly adjusted, run engine at idle.
- Increase engine speed to 2000 - 2200 rpm by lifting throttle valve lever. Using a small screwdriver inserted through slot in top of choke housing, push drive lever inside choke housing in direction of engine up to noticeable stop at pull-down diaphragm rod (Fig. 6).

Special Note:

Do not use excessive pressure against stop, otherwise starting valve and stepped cam may be displaced inside housing and incorrect measurement will then be obtained.

- Release throttle valve lever, but continue pushing drive lever against stop. This will cause choke lever to engage on second notch of stepped cam and set choke valve in pull-down position.
- Note engine fast idle speed and

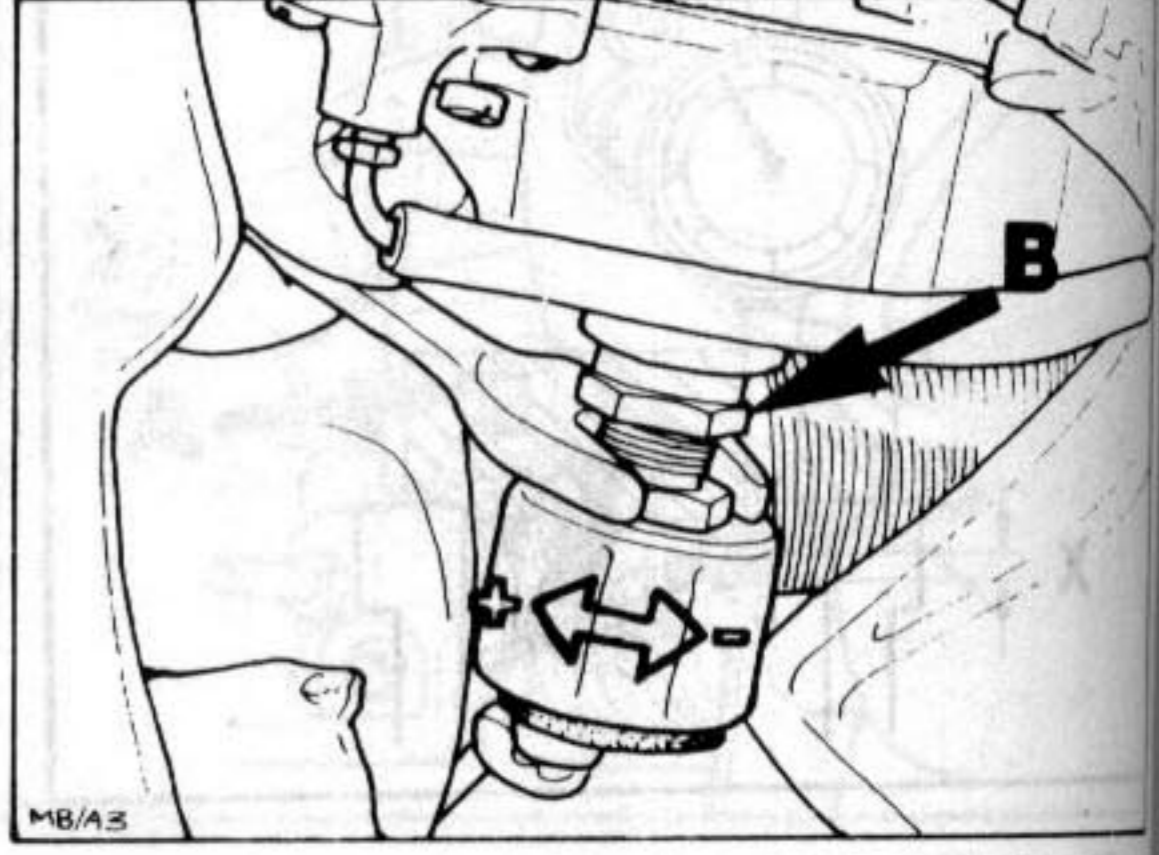


Fig. 3 Idle mixture adjustment

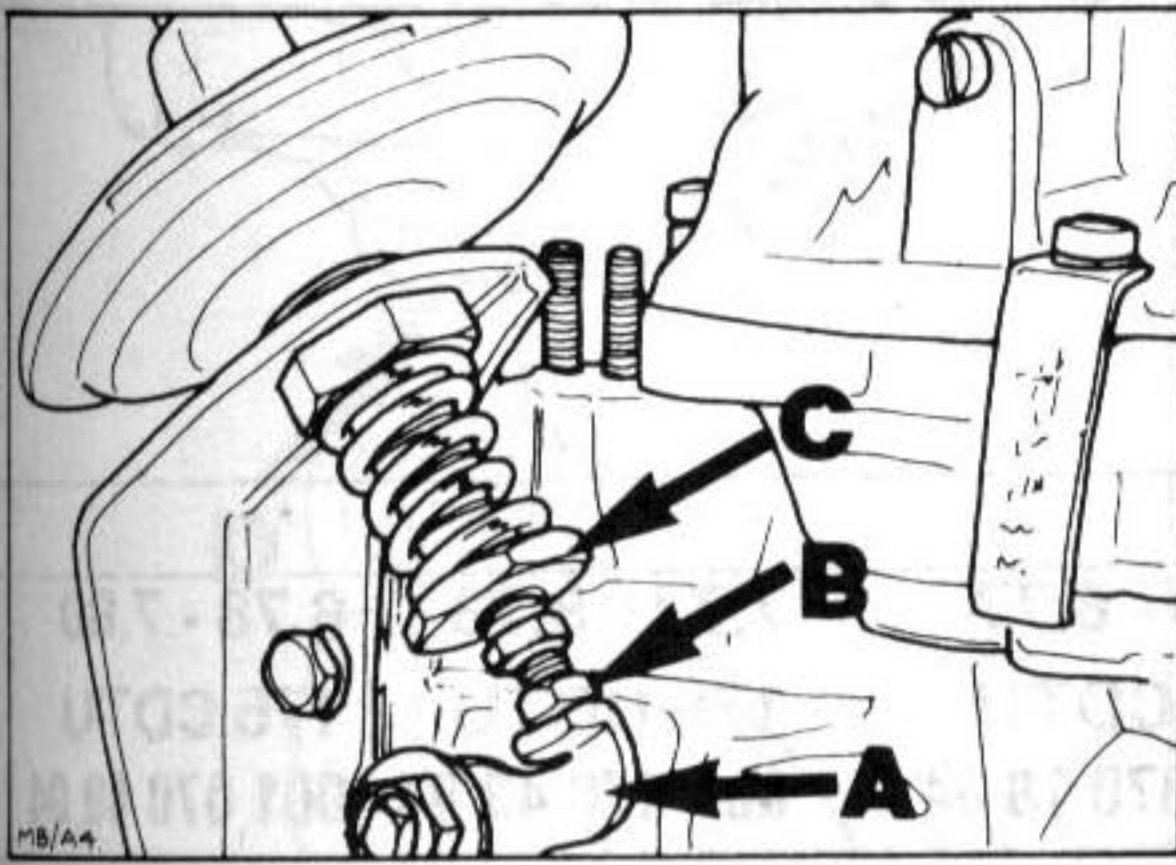


Fig. 4 Throttle damper adjustment

adjust if necessary. Alter length of connecting rod (A) below choke housing to obtain correct setting (Fig. 7).

Special Note:

Rod is provided with right and left-hand threads to permit adjustment without removal. Shorten rod to decrease engine speed, and lengthen it to increase speed. Half turn of rod will alter engine speed by approximately 200 rpm.

- f) With engine running at specified fast idle speed, note CO content level.
- g) If outside specified limits, adjust by slackening locknut at adjusting screw (B) on top of choke diaphragm housing and turning screw within permissible adjusting range to attain correct setting (Fig. 6).

Special Note:

Length of screw measured from top of diaphragm housing to end of screw must be 8,5 - 9,5 mm. Permissible adjusting range of screw is 1 mm.

- h) Late models may be fitted with a choke housing of different type with an auxiliary air adjusting screw at choke housing instead of adjusting screw at diaphragm. In this case, adjustment is made by turning auxiliary air screw in to enrich setting, or out to make it leaner.
- i) Allow drive lever at choke housing to return, accelerate engine briefly, then recheck fast idle speed and CO

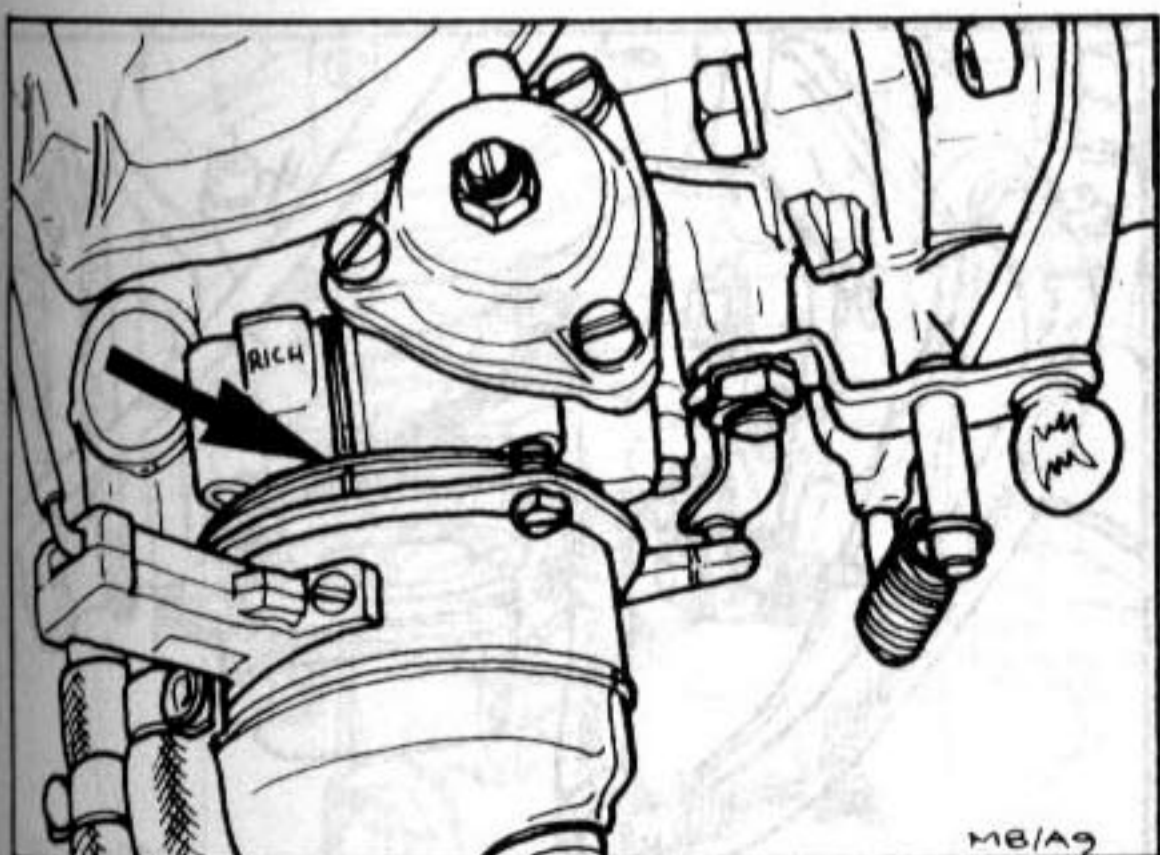


Fig. 5 Choke cover alignment

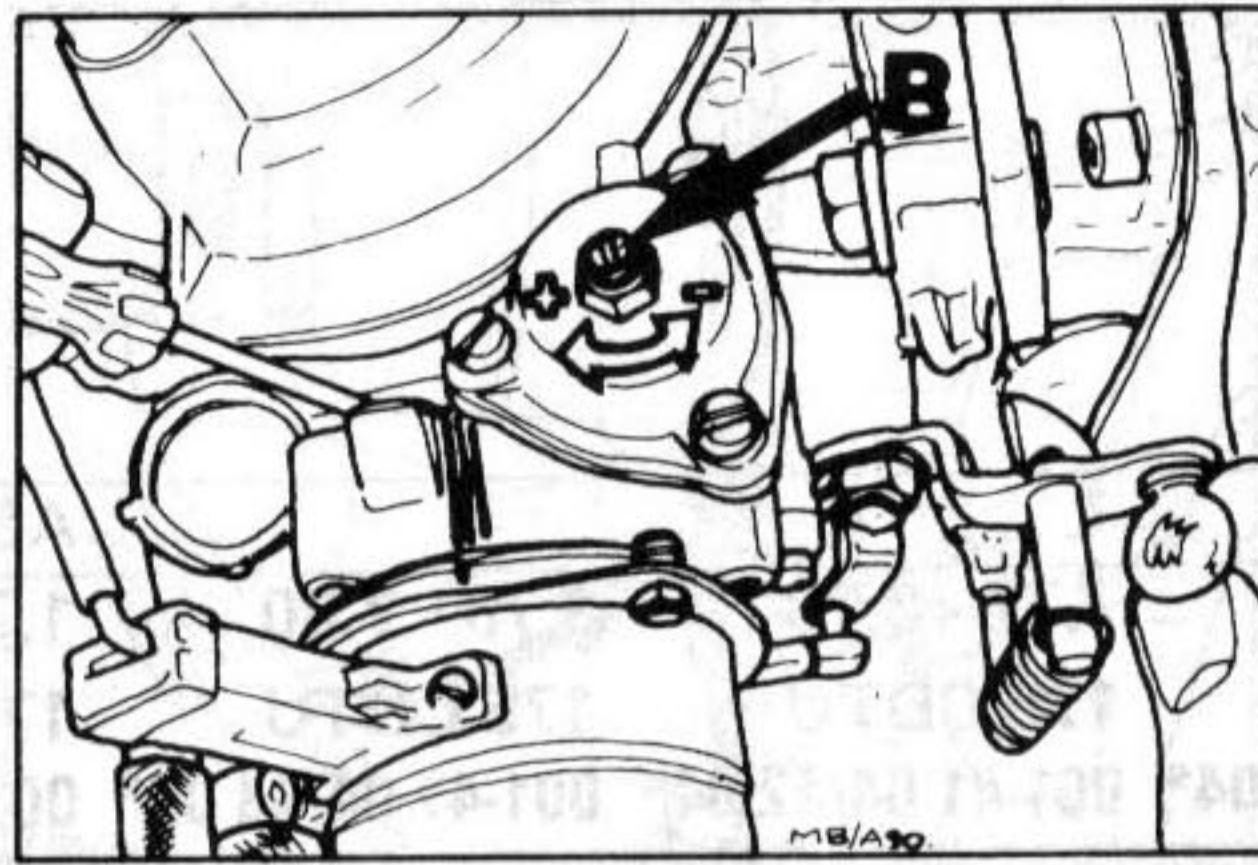


Fig. 6 Warm-up CO adjustment

content level and readjust if necessary.

2. THROTTLE DAMPER

- a) Start engine and allow to idle. Engine must be at normal operating temperature.
- b) Disconnect vacuum hose.
- c) Check engine speed. This should have risen to 1500 ± 100 rpm.
- d) If necessary, adjust to within these limits by turning adjusting screw (B) at end of diaphragm rod (Fig. 4).
- e) When adjustment is completed, reconnect vacuum hose.
- f) Check that a clearance of approximately 0,5 mm exists between head of adjusting screw (B) and actuating lever (A) on throttle shaft.
- g) If necessary, adjust clearance by means of large adjusting nut (C) at lower end of compression spring.
- h) Engage automatic transmission in Drive position.
- i) Turn power steering on to full lock and engage air conditioning system.
- j) Engine should continue to run smoothly and idle speed and CO level should be within specified limits.
- k) If necessary, adjust idle speed by means of large adjusting nut (C) at compression spring, and emission value by means of idle speed shut off valve, as detailed previously (Fig. 4).
- l) Finally, disengage transmission, power steering and air conditioning, and recheck that idle speed and emission value are still within specified limits.

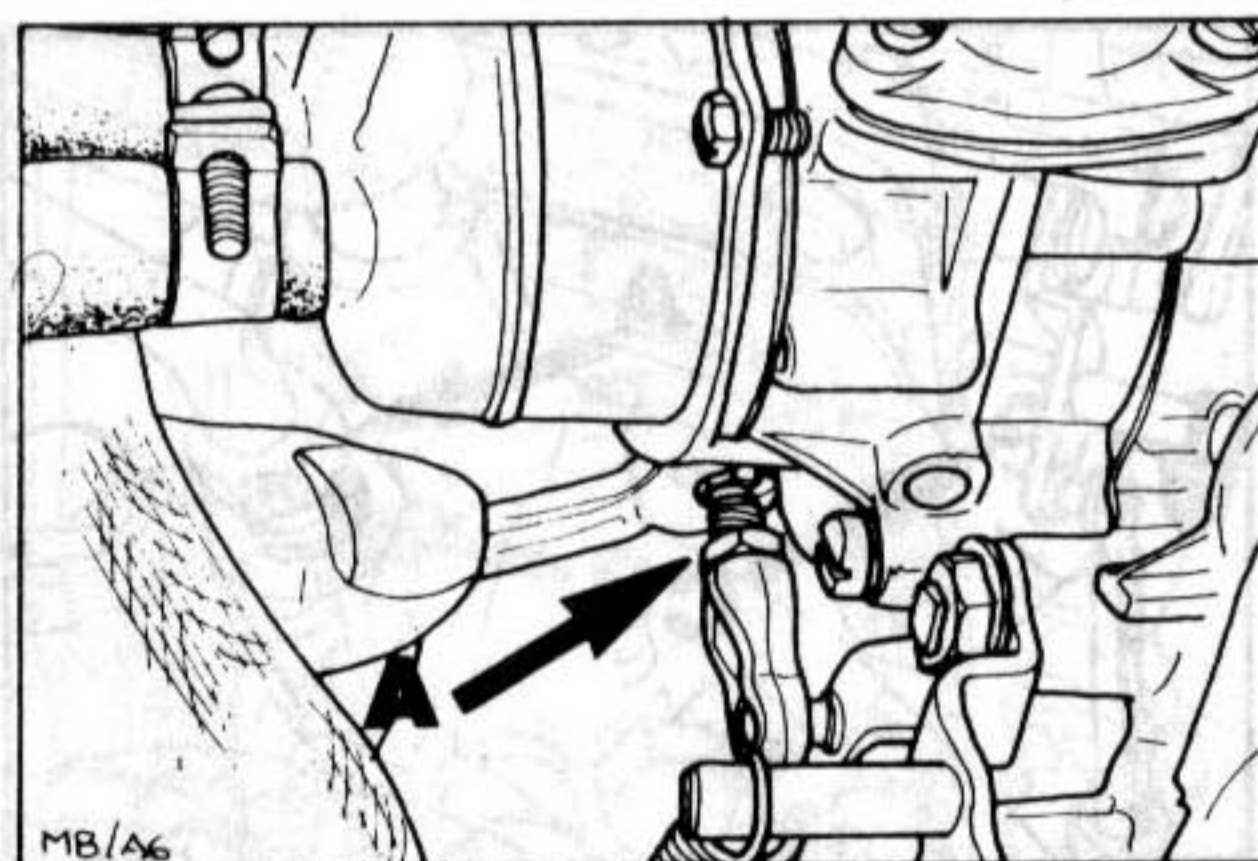


Fig. 7 Fast idle speed adjustment

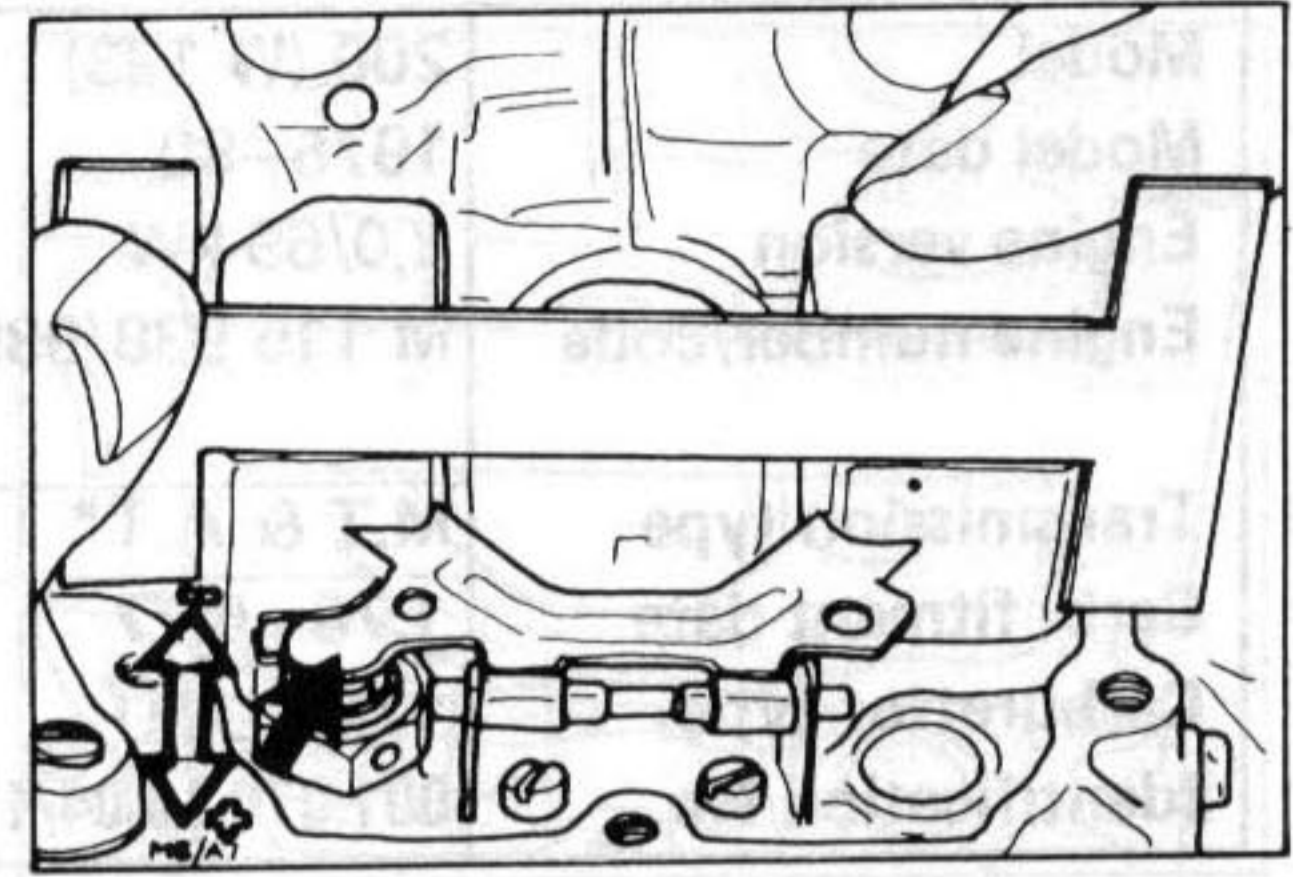


Fig. 8 Float level adjustment

ADJUSTMENTS, Carburettor removed

3. FLOAT LEVEL

Specification: 16 - 17 mm

- a) With carburettor inverted, slacken locknut and unscrew idle speed shut-off valve from float chamber cover.
 - b) Remove float chamber cover from bottom of carburettor.
 - c) Lift out cylindrical-shaped fuel nozzle and compression spring from housing between floats.
 - d) Carefully push float down until spring-loaded ball of float needle valve is fully pushed in.
 - e) Measure distance from highest point of each float to housing surface (Fig. 8).
- Special Note:** Measuring gauge, made up to dimensions shown in Fig. 9, can be used to check float level.
- f) If setting is outside specified limits, first check that sealing ring under float needle valve is of specified thickness (1.5 mm). Renew ring if necessary.
 - g) To adjust float level setting, float must first be removed.
 - h) Bend tab (arrowed) at float needle valve as required to achieve correct setting (Fig. 8).
 - i) After adjusting, ensure tab rests squarely on needle valve.
 - j) Also ensure that both floats are at same level in relation to housing surface. Align if necessary.
 - k) Refit components in reverse sequence of removing.

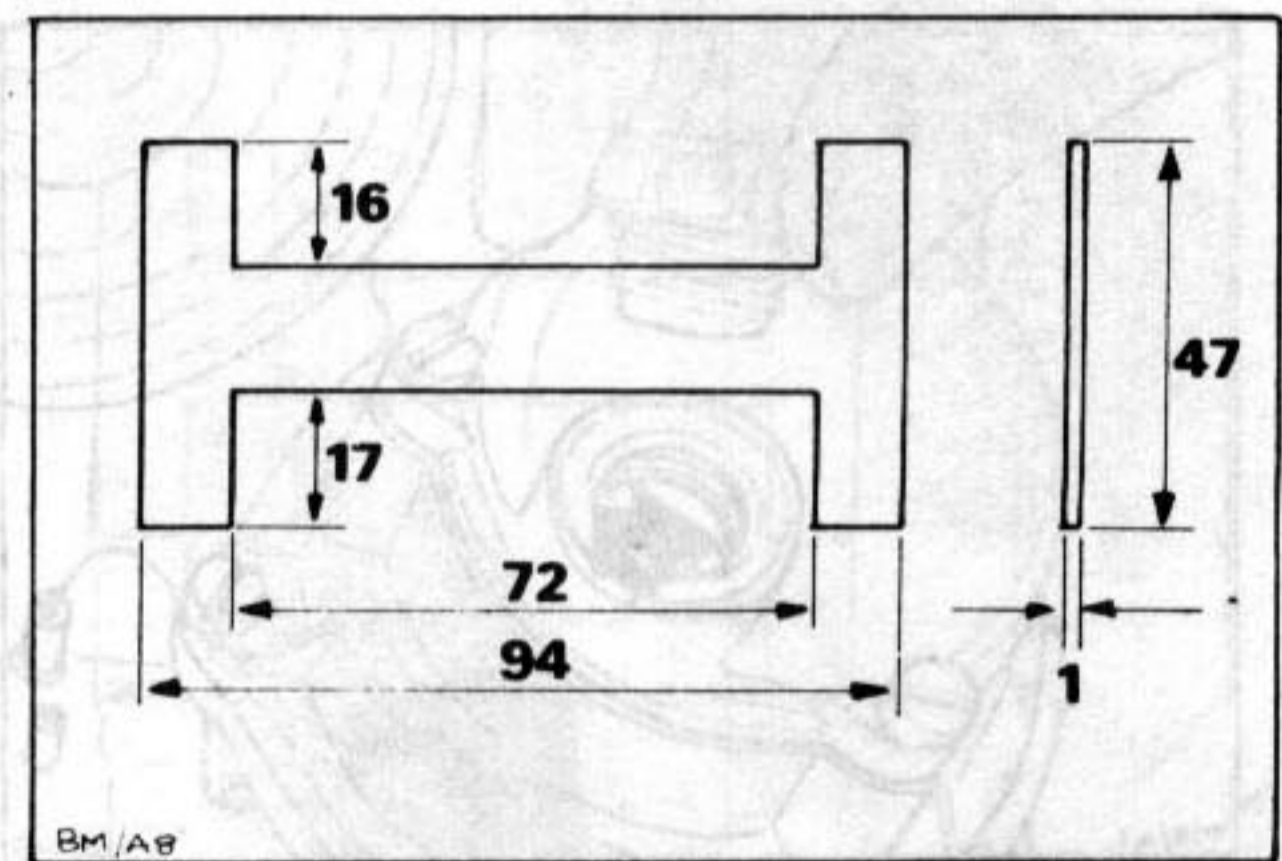


Fig. 9 Float level gauge

Model	200 (W 123)					
Model date	1976-80					
Engine version	2,0/69 kW					
Engine number/code	M 115 938/939					
Transmission type	M.T & A.T*			AC		
Carb. fitment date	1.76 - 6.77	7.77 - 8.78	8.78 - 7.80	1.76 - 6.77	7.77 - 8.78	8.78 - 7.80
Carburettor type	175 CDTU	175 CDTU	175 CDTU	175 CDTU	175 CDTU	175 CDTU
Identification No.	001 070 16 04/17 04*	001-41 04/42 04*	001-47 04/48 04*	001 070 18 04	001 070 43 04	001 070 49 04

Model	230/230C (W123)					
Model date	1976-80					
Engine version	2,3 (4)/80 kW					
Engine number/code	M 115 954					
Transmission type	M.T & A.T*			AC		
Carb. fitment date	1.76 - 6.77	7.77 - 8.78	8.78 - 9.80	1.76 - 6.77	7.77 - 8.78	8.78 - 9.80
Carburettor type	175 CDTU	175 CDTU	175 CDTU	175 CDTU	175 CDTU	175 CDTU
Identification No.	001 070 16 04/17 04*	001-41 04/42 04*	001-47 04/48 04*	001 070 18 04	001 070 43 04	001 070 49 04

ADJUSTMENTS, Carburettor Installed

1. IDLE ADJUSTMENT

1.1 Preparatory Conditions

- All other engine functions (valve clearances, ignition system) correctly adjusted. See 'Introduction'.
- Induction system without leaks.
- Engine at normal operating temperature (oil temp. 60 - 80°C).
- Air cleaner in position. Crankcase breather hose disconnected.
- All electrical components switched off. Also air conditioning, where applicable.
- Oil level in damper reservoir up to bottom edge of threads at filler hole (Fig. 1). ATF.
- Selector lever in position 'P' on auto. trans. models.
- Test instruments (rev-counter and exhaust gas analyser) connected in accordance with manufacturer's instructions.

1.2 Idle Speed & CO Level

Specification: 850 ± 50 rpm
1,5 ± 0,5 % CO

- a) Check that throttle lever at carburettor rests against throttle stop when in released position.

- b) Also check that plunger of throttle damper is not in contact with actuating lever on throttle shaft (Fig. 5). If necessary adjust nut (C).
- c) Check idle speed as follows:
Run engine at fast idle for about half a minute. Allow engine to idle and note idle speed.
- d) If outside specified limits, adjust by turning adjustment screw (A) at intake manifold (Fig. 2).
- e) Again run engine at fast idle for about half a minute, then allow to idle and note idle CO content level.
- f) If outside specified limits, first check that ambient air adjusting screw (B) is screwed fully in (Fig. 3). Remove plastic sealing cap and adjust with mixture adjustment screw (D, Fig. 4).
- g) Again run engine at fast idle for about half a minute, then recheck settings.
- h) Fit new sealing cap to fuel adjusting screw.
- i) On manual models, check adjustment of throttle linkage regulating rod. It should be possible to attach rod free of tension. If necessary, adjust length of rod after slackening

- clamp screw between sections of rod.
- j) On automatic models, check adjustment of regulating rod with engine running. It should be possible to attach rod free of tension with telescopic section of rod in fully extended position. Again rod length is adjustable, with ball socket.

1.3 Throttle Valve Basic Setting

The throttle stop screw is set at the factory and should not be altered under normal conditions. Only if the screw setting has been inadvertently disturbed, or if the specified idle speed cannot be obtained using the idle bypass screw, should it be reset as follows:

- a) Run engine at idle speed. Close off vacuum hose to throttle damper with hose clamp, or similar. Stop engine.
- b) Disconnect choke rod and throttle linkage regulating rod at carburettor.
- c) Pull tamperproof cap from throttle valve stop screw (C, Fig. 2).
- d) Slowly turn screw out until throttle valve is completely closed.
- e) From point where screw just starts to move throttle valve, turn screw in approximately one complete turn.
- f) Fit new tamperproof cap to stop

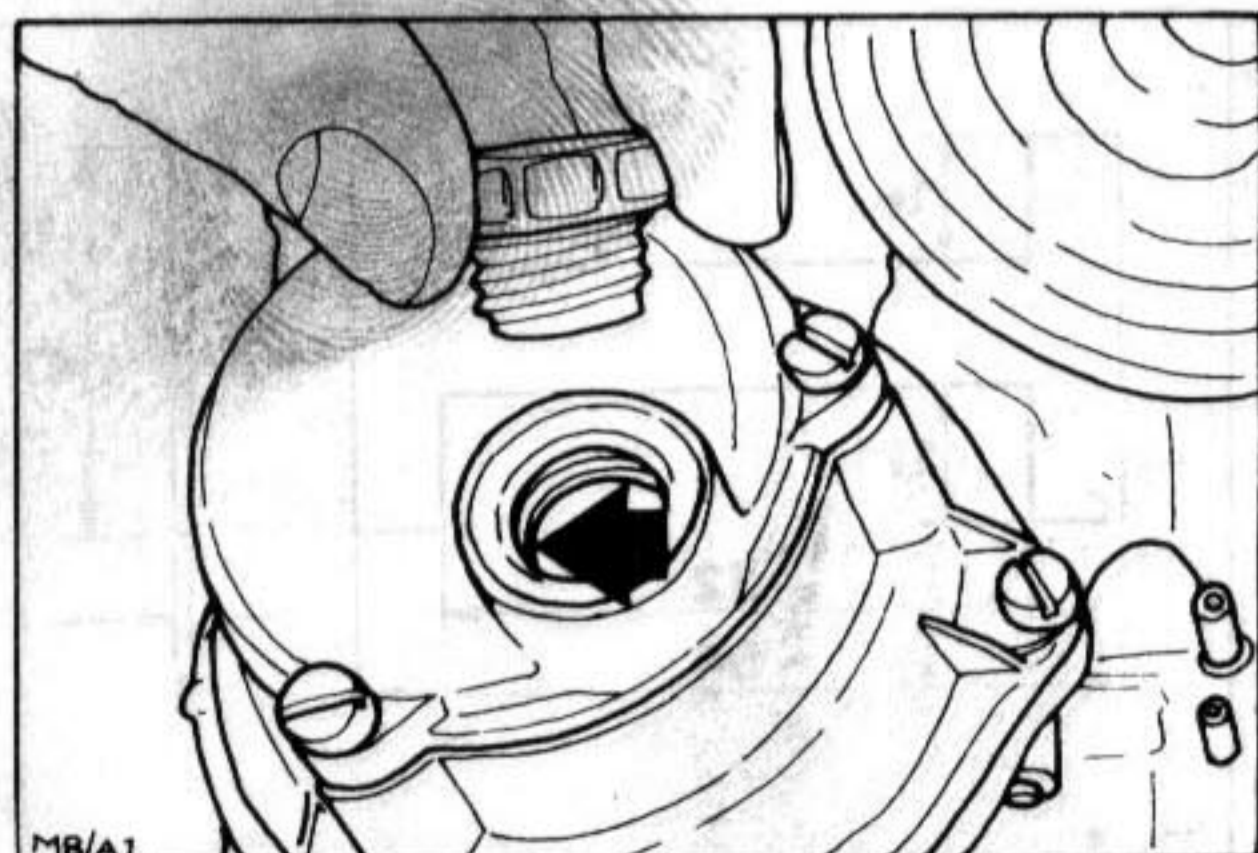


Fig. 1 Checking damper oil level

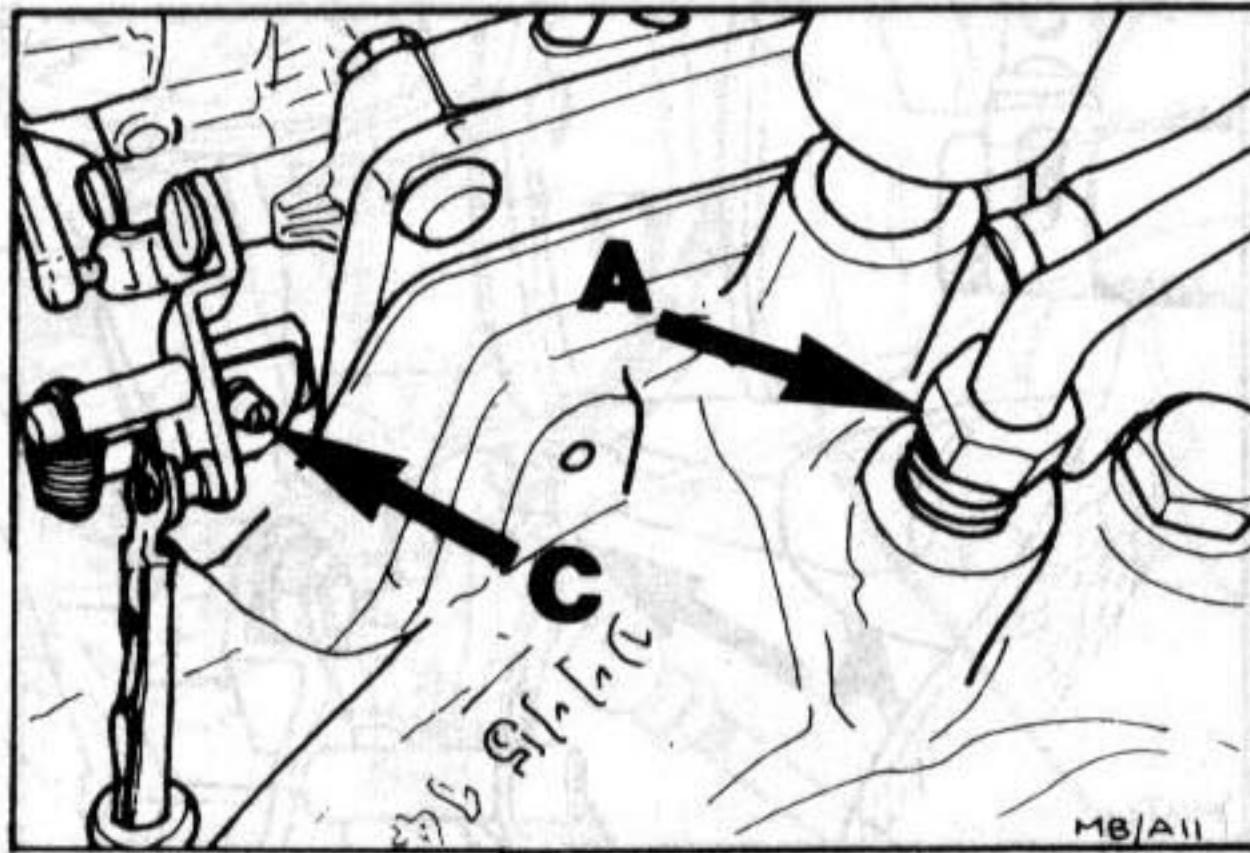


Fig. 2 Idle speed adjustment screw (A)

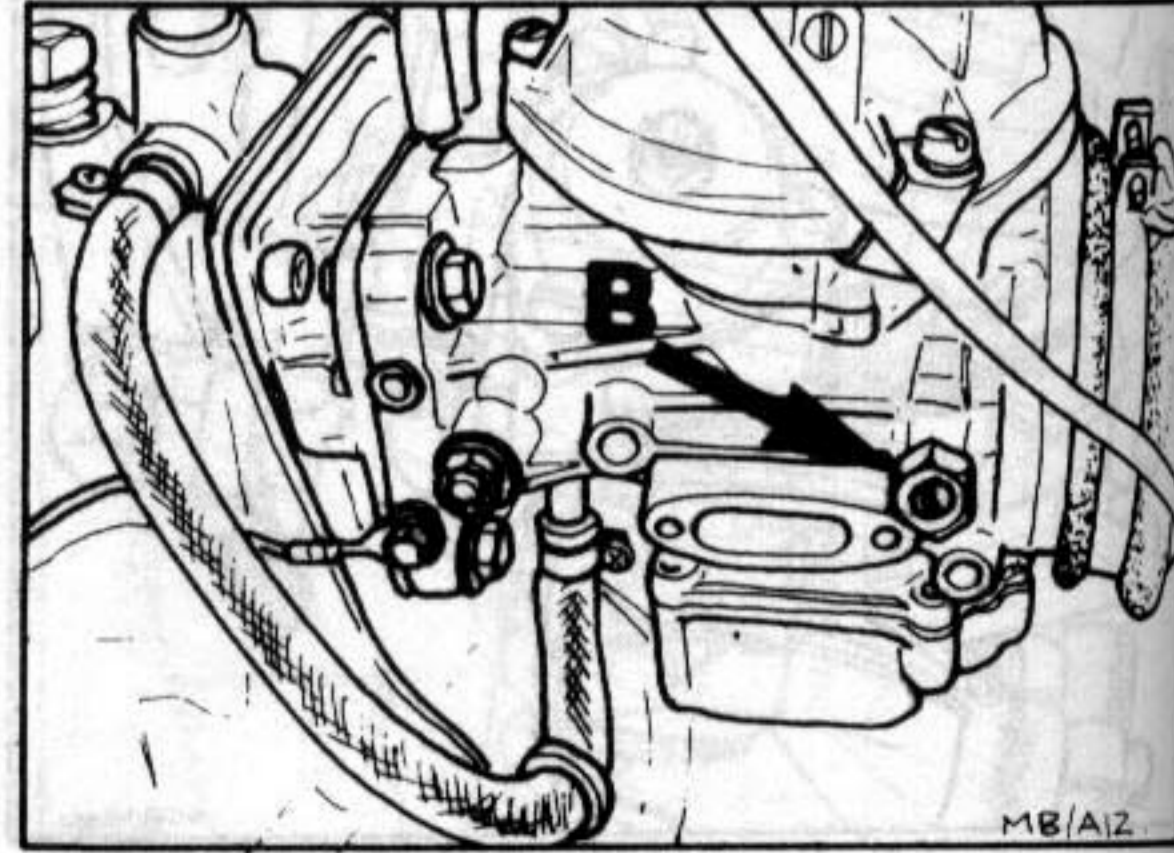


Fig. 3 Ambient air adjustment screw

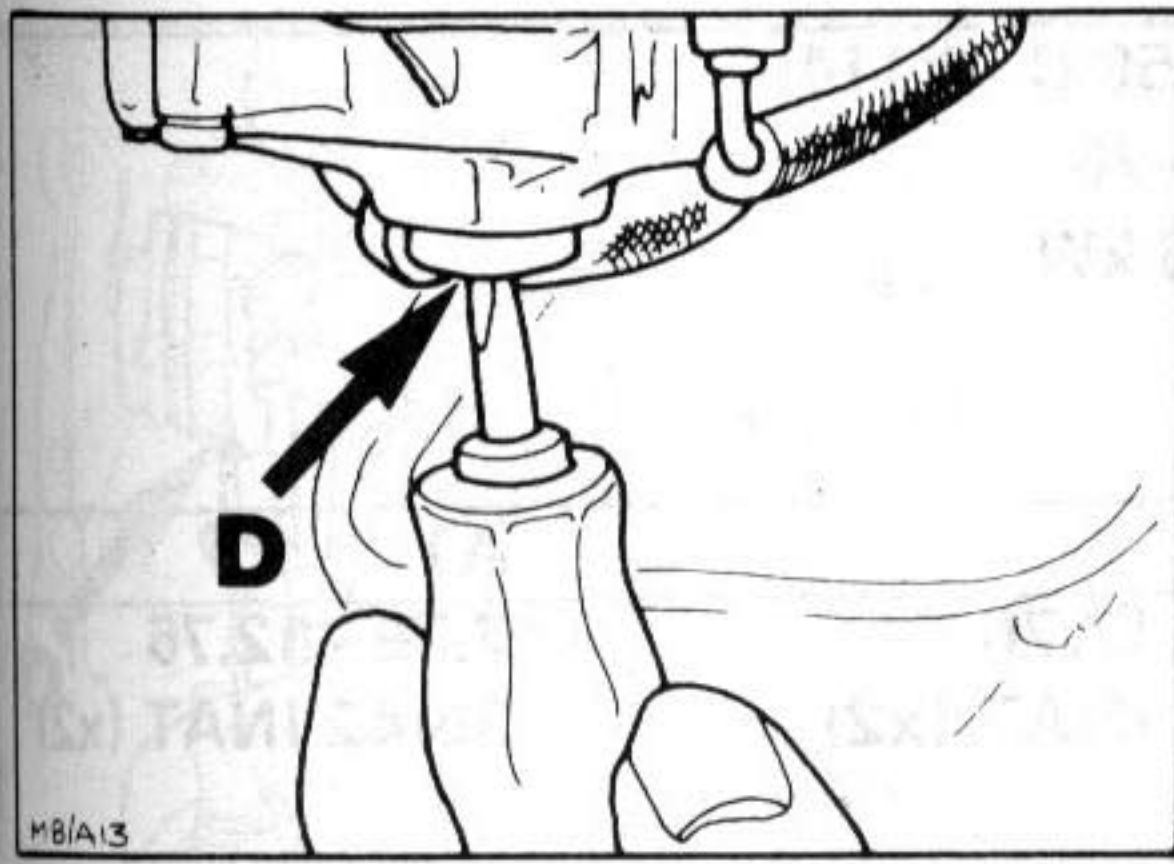


Fig. 4 Mixture adjustment screw

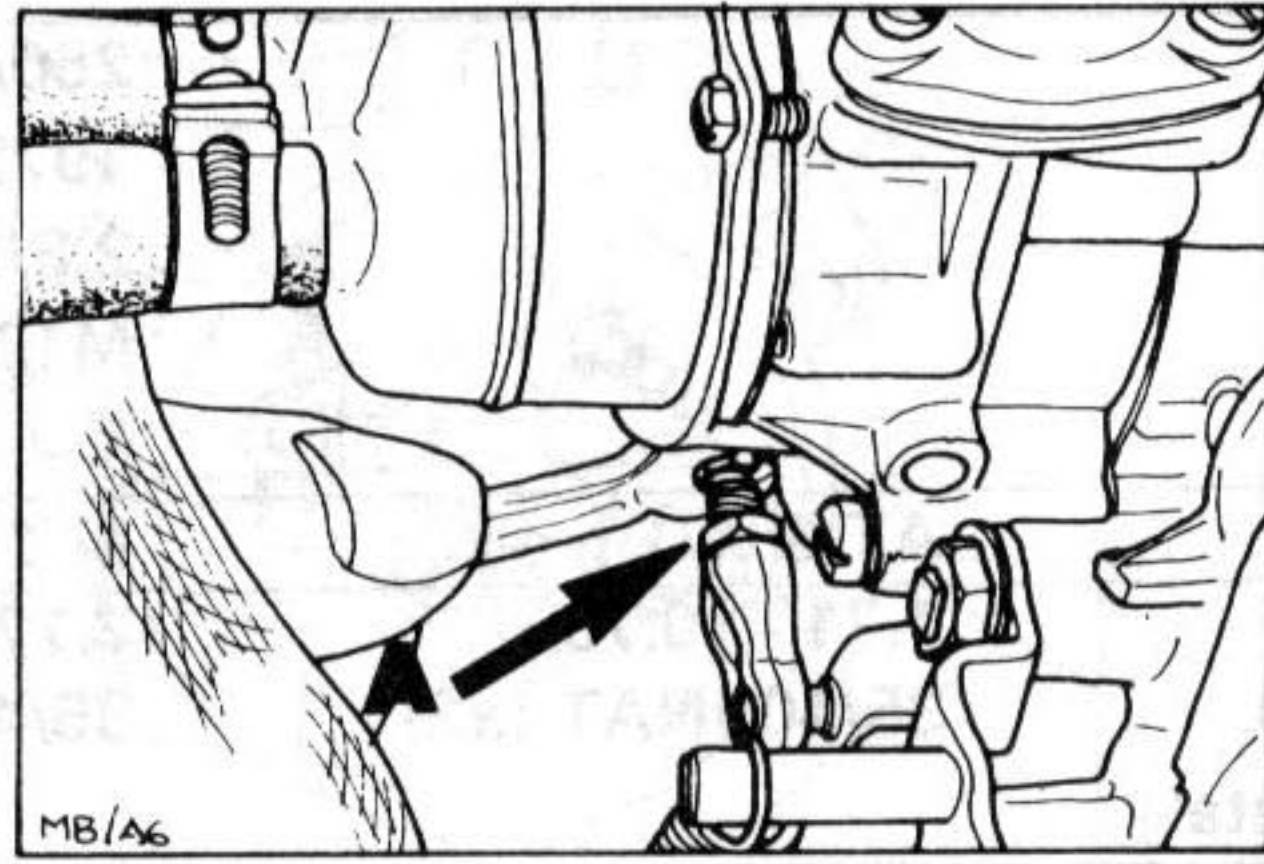


Fig. 6 Fast idle speed adjustment

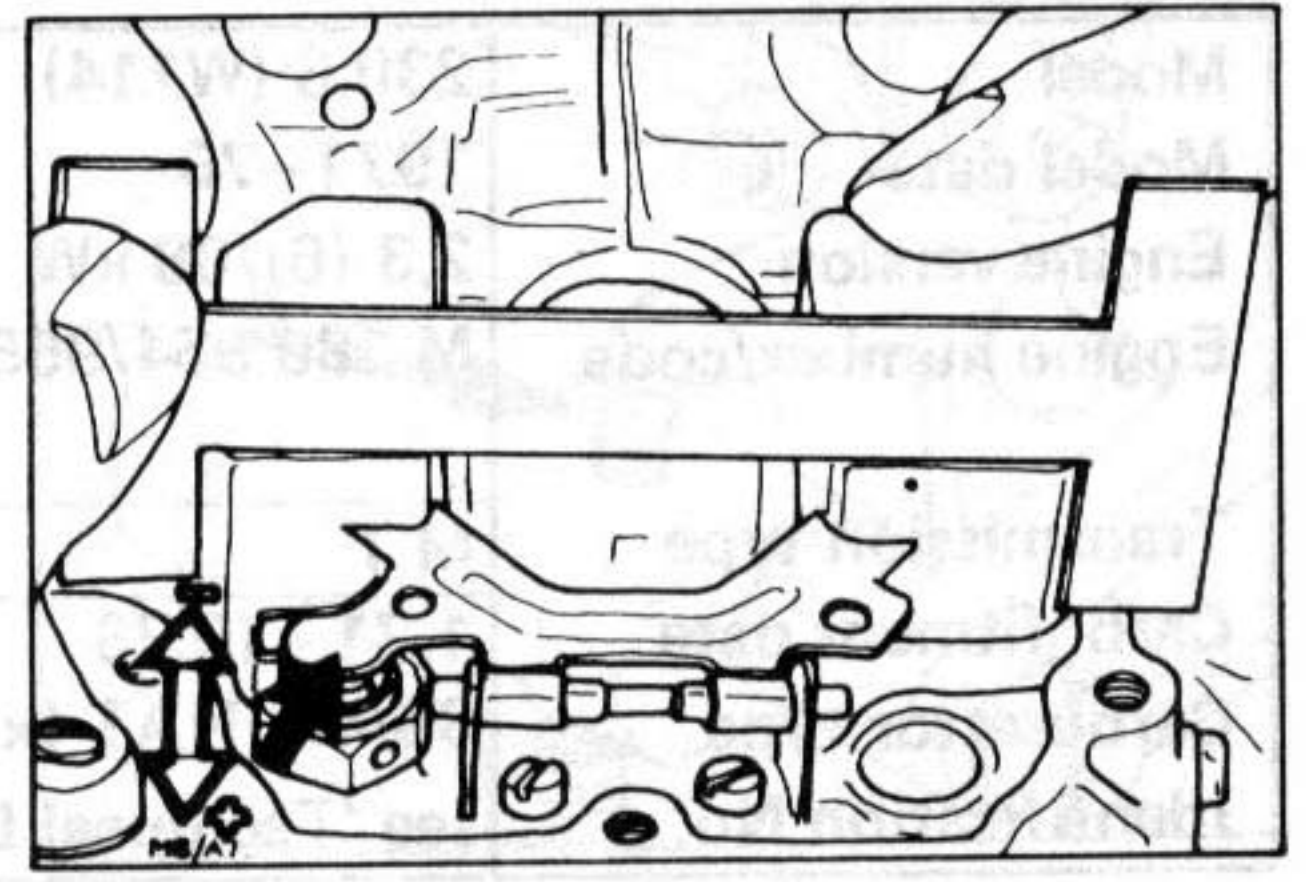


Fig. 8 Float level adjustment

screw.

g) Finally, adjust idle speed as detailed previously.

1.4 Fast Idle Adjustment

**Specification: 1900 ± 100 rpm
5 - 6 % CO**

- a) Ensure that mark on choke cover is in alignment with mark on choke housing.
- b) With idle speed correctly adjusted, run engine at idle.
- c) Increase engine speed to 2000 - 2200 rpm by lifting throttle valve lever. Using a small screwdriver inserted through slot in top of choke housing, push drive lever inside choke housing in direction of engine up to noticeable stop at pull-down diaphragm rod (Fig. 7).
- d) Release throttle valve lever, but continue pushing drive lever against stop. This will cause choke lever to engage on second highest notch of stepped cam and set choke valve in pull-down position.
- e) Note engine fast idle speed and adjust if necessary. Alter length of connecting rod (A) below choke housing to obtain correct setting (Fig. 6).
- f) With engine running at specified fast idle speed, note CO content level.
- g) If outside specified limits, adjust by turning auxiliary air adjusting screw (B) at choke housing (Fig. 7). Turn

screw in to enrich, and out to make leaner.

2. THROTTLE DAMPER

- a) Start engine and allow to idle. Engine at operating temperature.
- b) Disconnect vacuum hose.
- c) Check engine speed. This should have risen to 1500 ± 100 rpm.
- d) If necessary, adjust to within these limits by turning adjusting screw (B) at end of diaphragm rod (Fig. 5).
- e) When adjustment is complete, reconnect vacuum hose.
- f) Check that a clearance of approximately 0,1 mm exists between head of adjusting screw (B) and actuating lever (A) on throttle shaft.
- g) If necessary, adjust clearance by means of large adjusting nut (C) at lower end of compression spring.
- h) On automatic models, engage transmission in Drive position.
- i) Turn power steering on to full lock and engage air conditioning system, where applicable.
- j) Engine should continue to run smoothly and idle speed should be within specified limits.
- k) If necessary, adjust idle speed by means of large adjusting nut (C) at compression spring (Fig. 5).
- l) Finally, disengage transmission, power steering and air conditioning, and recheck that idle speed is still within specified limits.

ADJUSTMENTS, Carburettor removed

3. FLOAT LEVEL

Specification: 16 - 17 mm

- a) With carburettor inverted, remove float chamber cover from bottom of carburettor.
- b) Lift out cylindrical-shaped temperature-controlled compensating element, together with fuel nozzle, from housing between floats.
- c) Carefully push float down until spring-loaded ball of float needle valve is fully pushed in.
- d) Measure distance from highest point of floats to housing surface (Fig. 8).

Special Note:

- Measuring gauge, made up to dimensions shown in Fig. 9, can be used to check float level.
- e) If setting is outside specified limits, first check that sealing ring under float needle valve is of specified thickness (1,5 mm).
- f) To adjust float level setting, float must first be removed.
- g) Bend tab (arrowed) at float needle valve as required to achieve correct setting (Fig. 8).
- h) After adjusting, ensure tab rests vertically on needle valve.
- i) Also ensure that both floats are same level in relation to housing surface.
- j) Refit components in reverse sequence of removing.

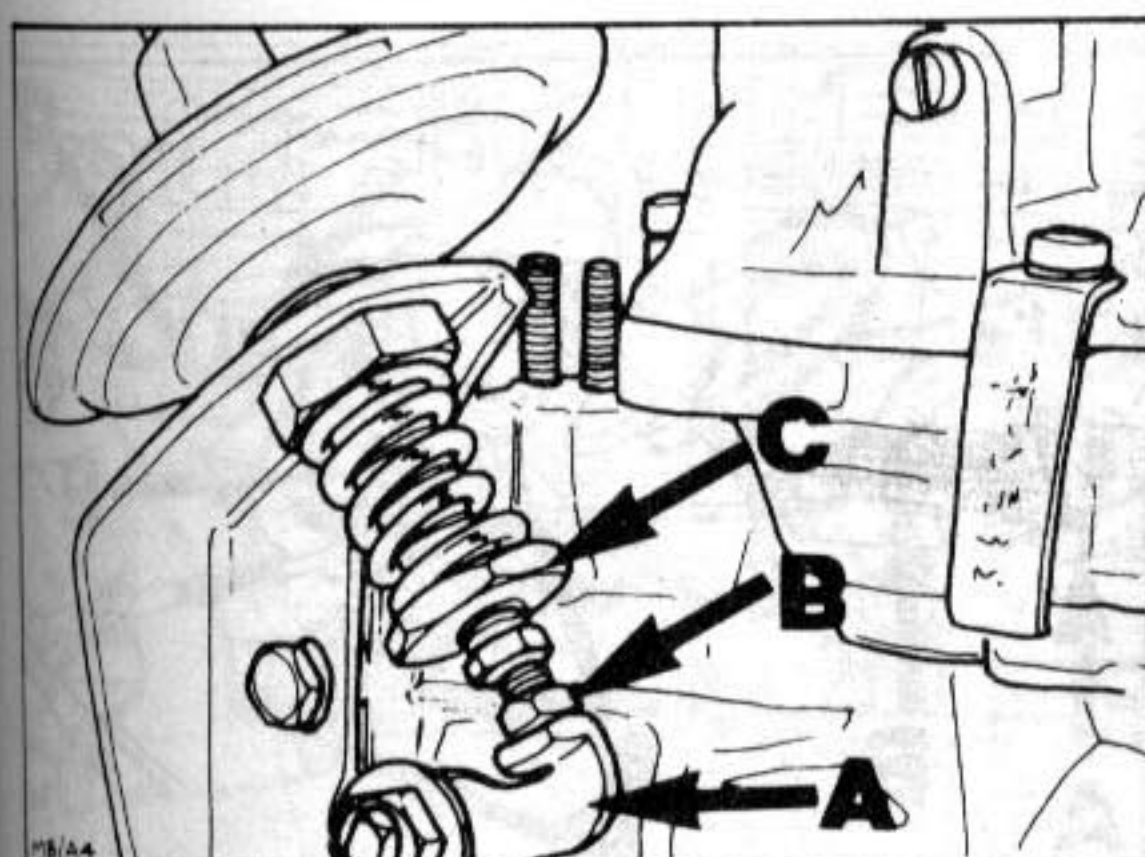


Fig. 5 Throttle damper adjustment

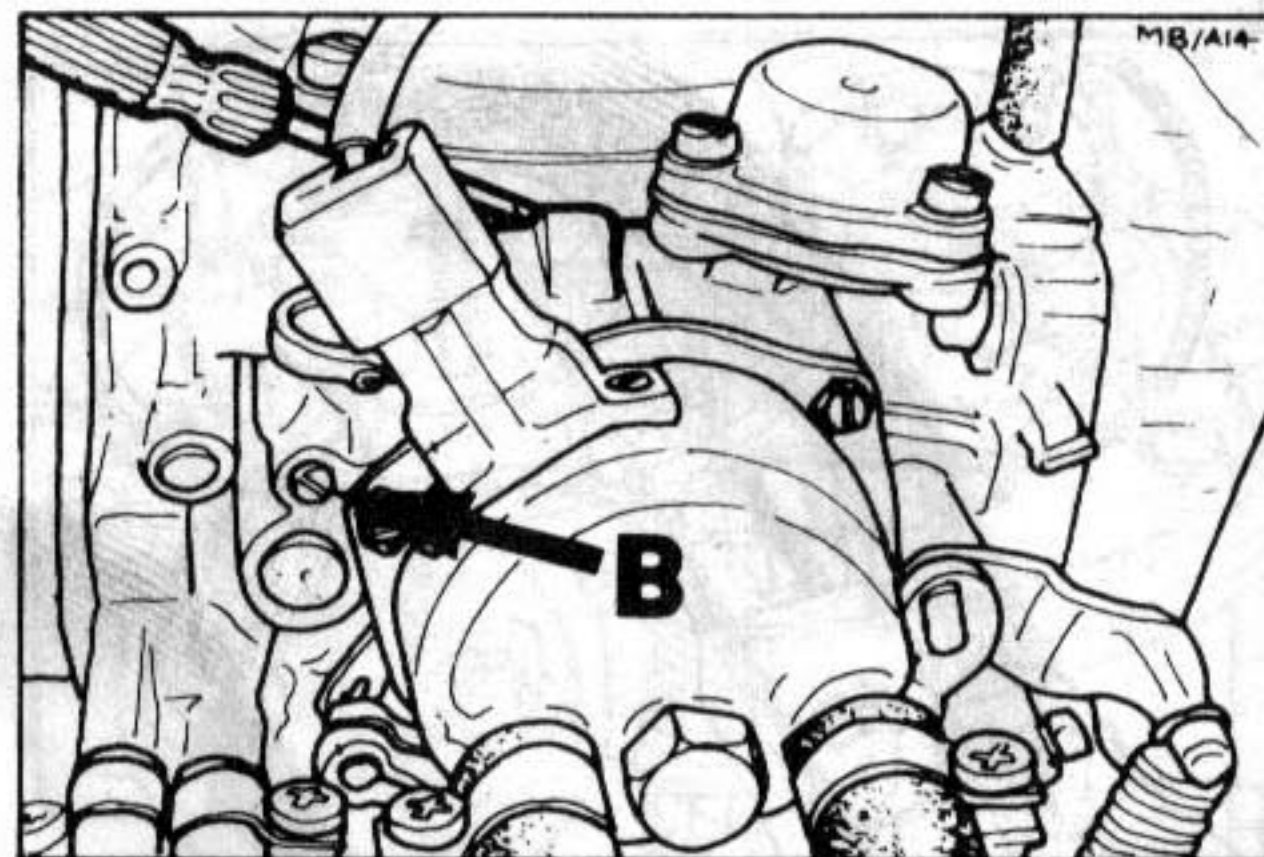


Fig. 7 Auxiliary air adjustment screw

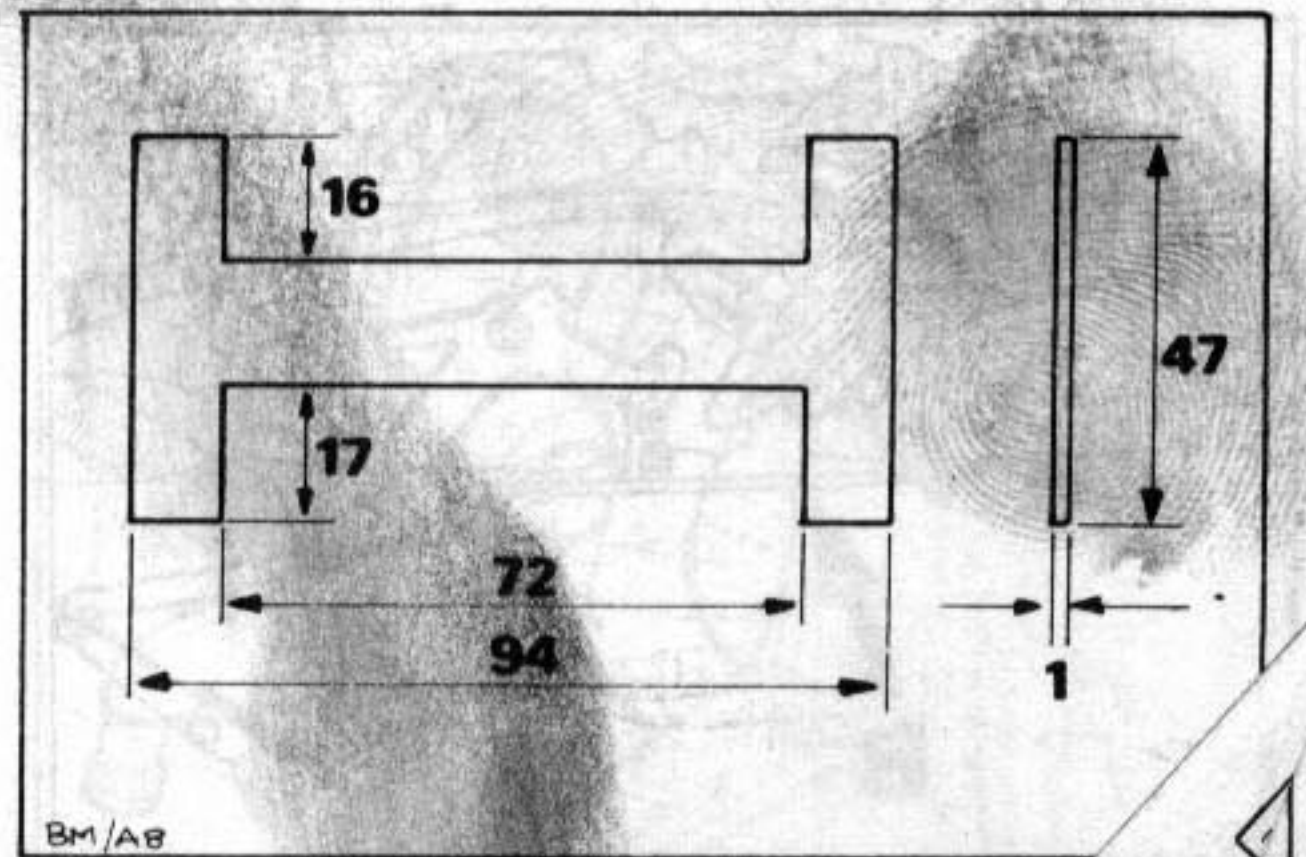


Fig. 9 Float level gauge

Model	230.6 (W114)	250/250 C (W114)	
Model date	1971-76	1972-76	
Engine version	2,3 (6)/88 kW	2,8/96 kW	
Engine number/code	M 180 954/955	M130	
Transmission type	M T	AT & AC	M T
Carb. fitment date	1.71 - 10.76	1.71 - 10.76	7.72 - 12.76
Carburettor type	35/40 INAT (x2)	35/40 INAT (x2)	35/42 INAT (x2)
Identification No.	see 'Technical Data'		

ADJUSTMENTS, Carburettor Installed

1. IDLE ADJUSTMENT

1.1 Preparatory Conditions

- All other engine functions (e.g. valve clearances, ignition system) correctly adjusted. See 'Introduction'.
- Inlet system without leaks.
- Engine at normal operating temperature (oil temperature 60°C).
- Air cleaner removed.
- All electrical components switched off. Also air conditioning, where applicable.
- Both choke valves fully open.
- Selector lever in position 'P' on auto. trans. models.
- Test instruments (rev-counter and exhaust gas analyser) connected in accordance with manufacturer's instructions.

1.2 Idle Speed & CO Level

Specification: 850 ± 50 rpm
Up to 1.75 2,75 ± 0,75 % CO
1.1975 on 1,75 ± 0,75 % CO

- Run engine at fast idle for about half a minute.
- Disconnect throttle linkage rod (A) at front carburettor and interconnecting rod (B) from between carburettors (Fig. 1).
- Check carburettor synchronisation, using air flow balance meter (Fig. 2). Allow engine to idle and measure air flow through each carburettor.
- If equal readings are not obtained,

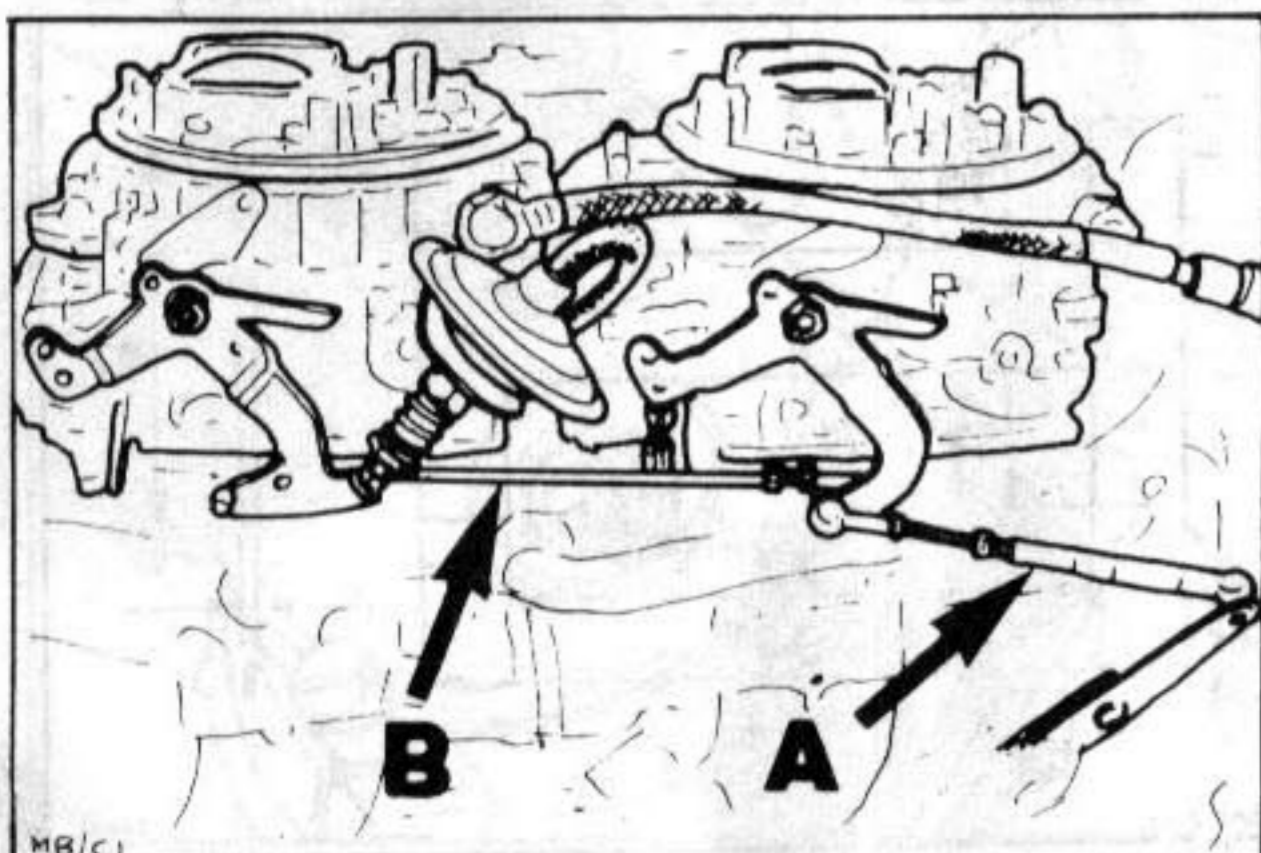


Fig. 1 Throttle linkage rods

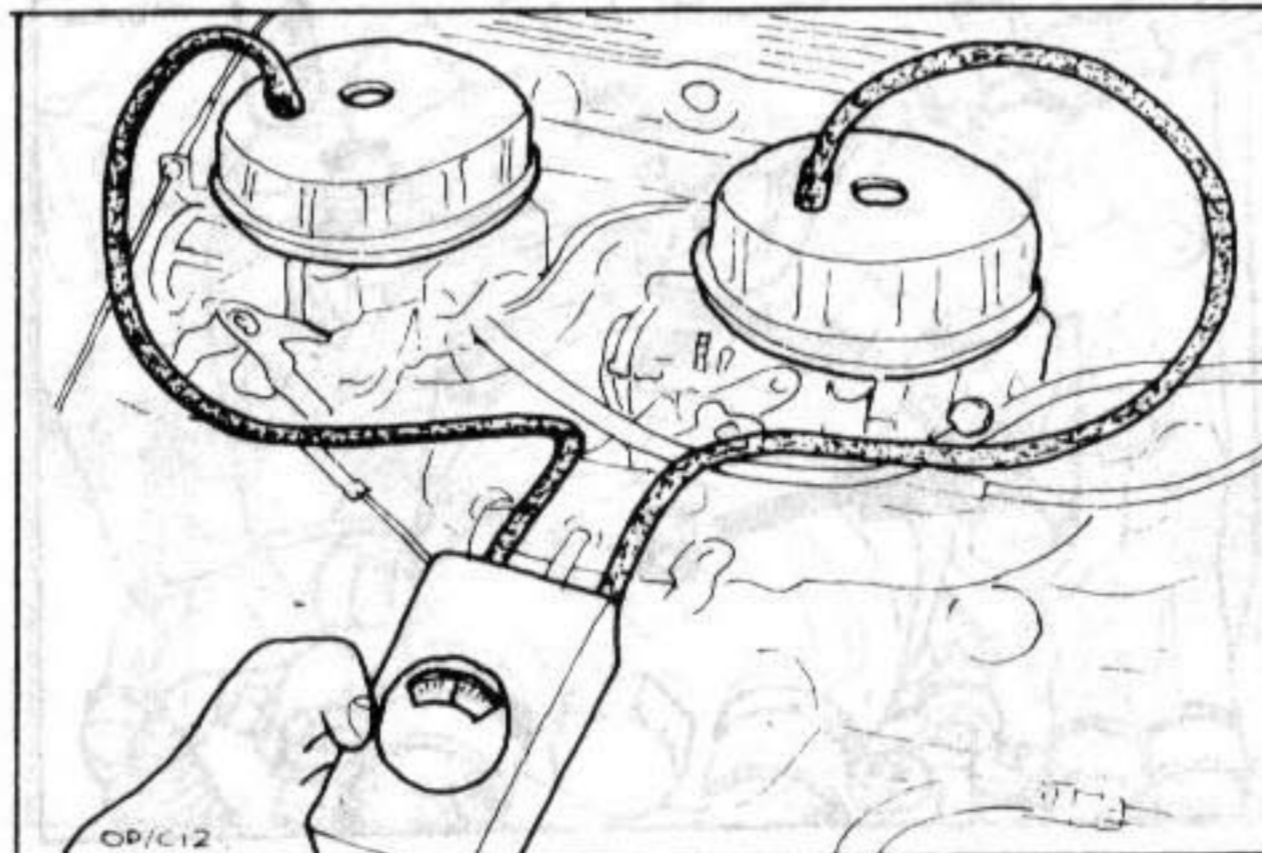


Fig. 2 Synchronising air flow

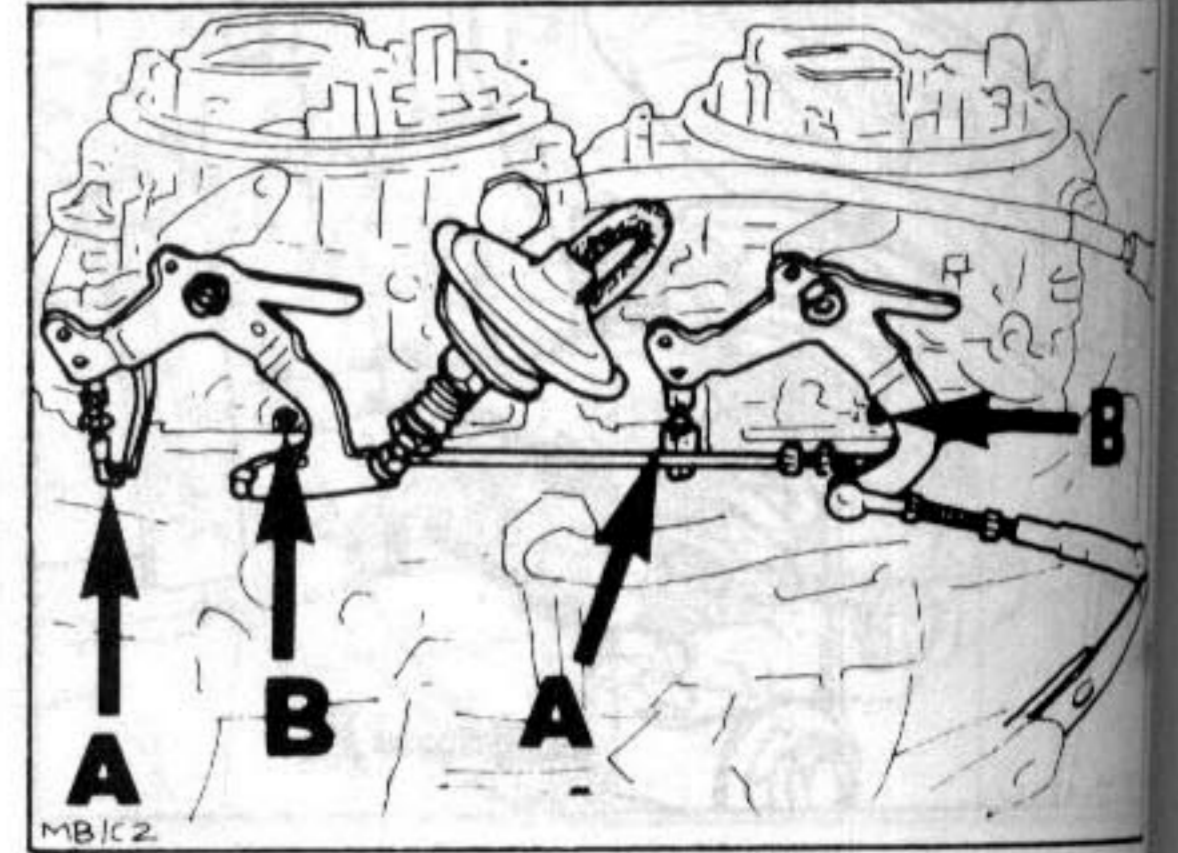


Fig. 3 Idle adjustment screws

- adjust by turning nuts (A) on connecting rods (Fig. 3).
- Again run engine at fast idle for about half a minute, then allow to idle and note idle speed.
- If idle speed is outside specified limits, adjust by turning nuts (A) on connecting rods (Fig. 3). Turn nuts at both connecting rods by equal amounts to maintain synchronisation.
- Recheck carburettor balance and idle speed.
- With engine idling, check CO content level.
- If outside specified limits, adjust by turning idle mixture control screw (B) at both carburettors (Fig. 3). Initially, set each screw to give maximum engine speed with optimum engine running.

Special Note:

Late carburettors are fitted with plastic limiter caps at idle mixture control screws and idle mixture should be carried out only within limit afforded by these caps. No attempt should be made to remove caps to increase range of adjustment.

- Recheck carburettor balance, idle speed and CO content level and re-adjust if necessary.
- Reconnect throttle interconnecting rod (B), ensuring that socket on rod coincides exactly with ball head on throttle lever (Fig. 1). If necessary, adjust length of rod to achieve correct alignment. Idle speed and carburettor balance must remain unchanged when rod is connected.
- On manual models, reconnect throttle linkage rod (A, Fig. 1). Roller on

- linkage must rest comfortably in its position at end of slot in quadrant lever. If necessary, adjust length of linkage rod to achieve this condition.
 - On automatic models, reconnect throttle linkage rod (A' Fig. 1). With engine running and throttle lever on carburettor held against idle stop, rod should be able to be easily installed while fully extended. If necessary, adjust length of rod to achieve this condition.
 - Refit air cleaner assembly.
 - Run engine at fast idle for about half a minute, then recheck idle speed and CO content level and readjust if necessary.
- (Fig. 4). Clockwise: to raise, anti-clockwise: to lower fast idle speed.

Special Note:

It will be necessary to stop engine and fully open throttle to gain access to adjustment screw.

- When adjustment is completed, open throttle slightly to release cam from fast idle position.
- Repeat adjustment for front carburettor.
- When adjustment is completed, set both carburettors in fast idle position and check fast idle speed.
- Finally, reconnect throttle interconnecting rod.

2. VACUUM GOVERNOR

- Engine at normal operating temperature.

2.1 Auto. Trans. Models.

- Start engine and allow to idle.

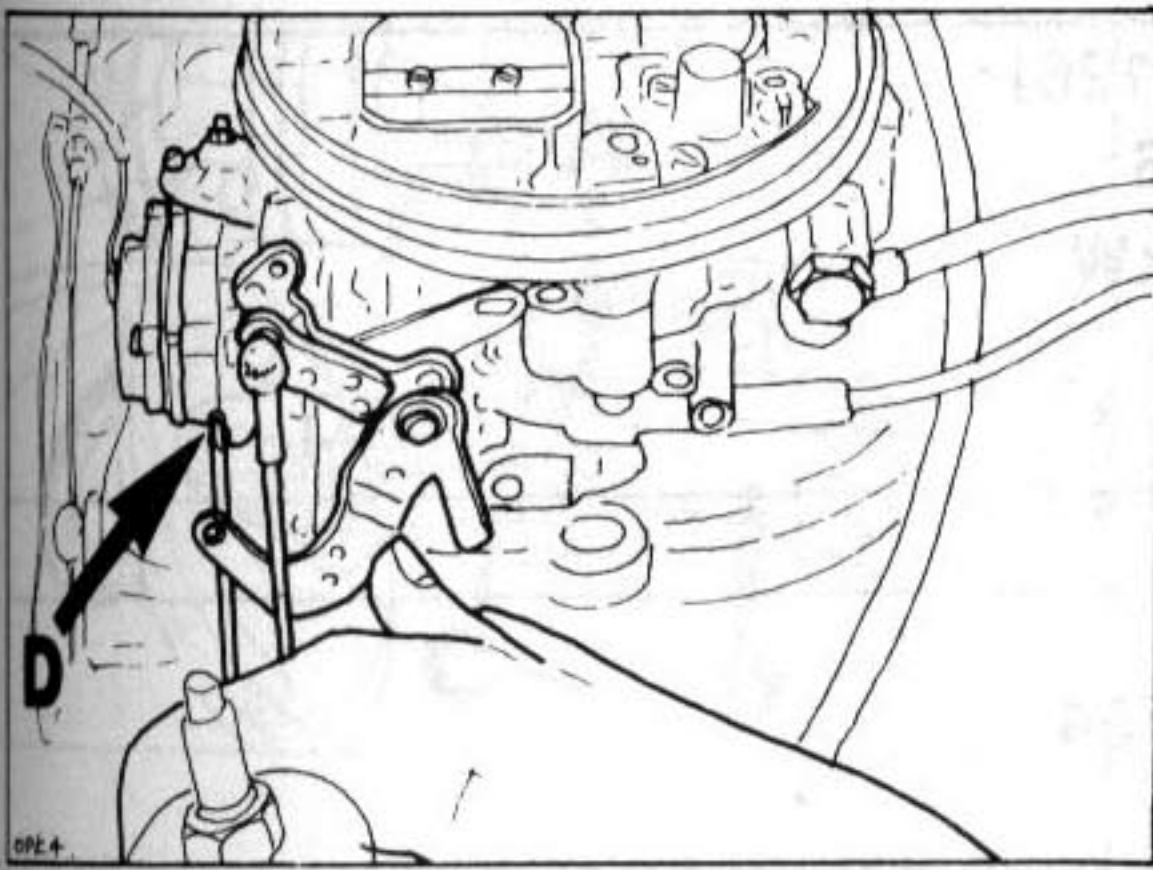


Fig. 4 Fast idle adjustment

- With car in gear, check that engine runs about 100 rpm below specified idle speed. If necessary, adjust by turning adjusting nut (A, Fig. 5).
- Take out of gear and check that actuating lever (C) is against idle stop (D).
- If lever is touching plunger end bolt (B), turn bolt back slightly, then re-check compression spring setting with gear engaged.

2.2 Manual Trans. Models

- With engine idling, check that a clearance of 0,1 mm exists between head of plunger bolt (B) and actuating lever (C), (Fig. 5). Power steering and air conditioning must not be operating, where applicable.
- If necessary, adjust by turning compression spring adjusting nut (A).

3. AUTOMATIC CHOKE

3.1 Preparatory Conditions

- Air cleaner assembly removed.
- Electrical feed wire disconnected.
- Auto-choke outer housing and bi-metal spring assembly detached.

3.2 Choke Connecting Rod

- With choke plate held closed, check that clearance 'X' between diaphragm pull rod and choke intermediate lever is 0,1 - 0,2 mm (Fig. 6).
- If play is outside these limits, slacken clamp bolt at upper end of choke connecting rod and reposition rod to

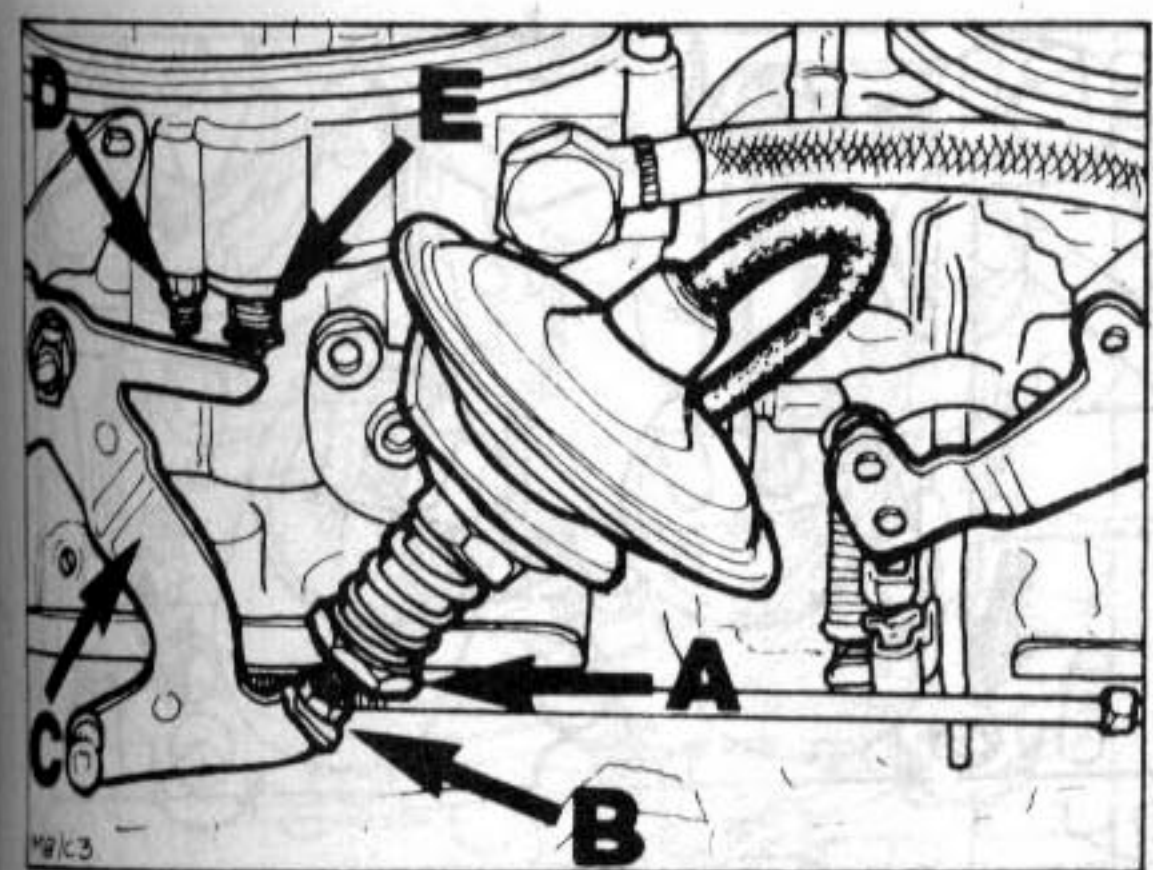


Fig. 5 Throttle governor adjustment

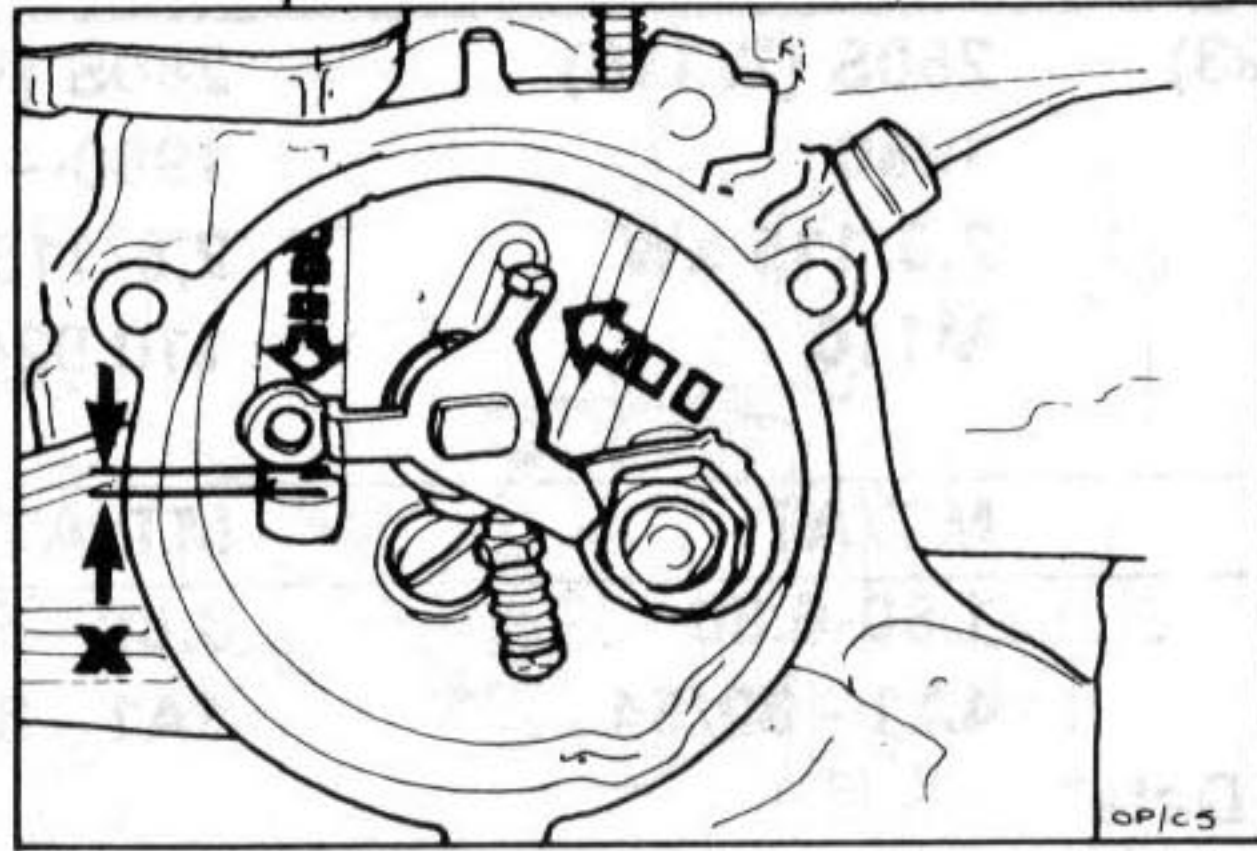


Fig. 6 Checking choke rod clearance

- obtain correct setting.
- Retighten clamp bolt and push clamp ring against clamp so that no play is present.

3.3 Choke Valve Gap

Specification: $2,4 \pm 0,1$ mm

- Close choke plate and use rubber band to keep it closed (Fig. 7).
- Push diaphragm rod (B) against stop.
- Check gap between lower edge of choke plate and air intake wall with suitable size of drill (C).
- If clearance is outside specified limits, adjust with stop screw (D).

3.4 Reassembly

- Refit choke outer housing and bi-metal spring assembly. Position housing and loosely fit three retaining screws.
- Turn cover to left until adjustment marks on cover and housing align, then lock up screws.
- Reconnect electrical feed wire to choke housing and refit air cleaner.

4. VENTILATION VALVE

The float chamber ventilation valve is set in production and should not normally require adjustment.

- With control lever (C) just touching ventilation valve (E), check clearance between lever and stop screw (D), (Fig. 7). Manual Trans. 2,5 - 2,8 mm. Automatic 1,0 mm.

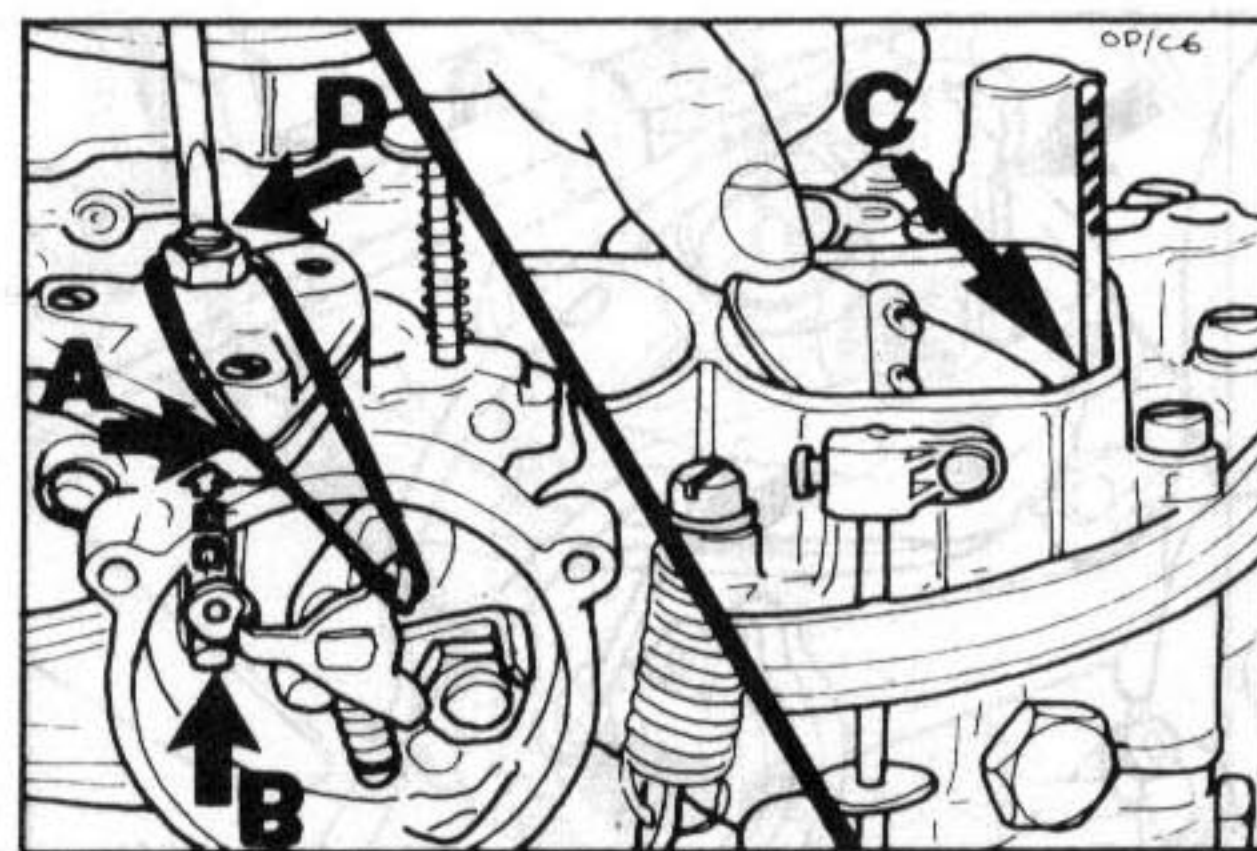


Fig. 7 Checking choke valve gap

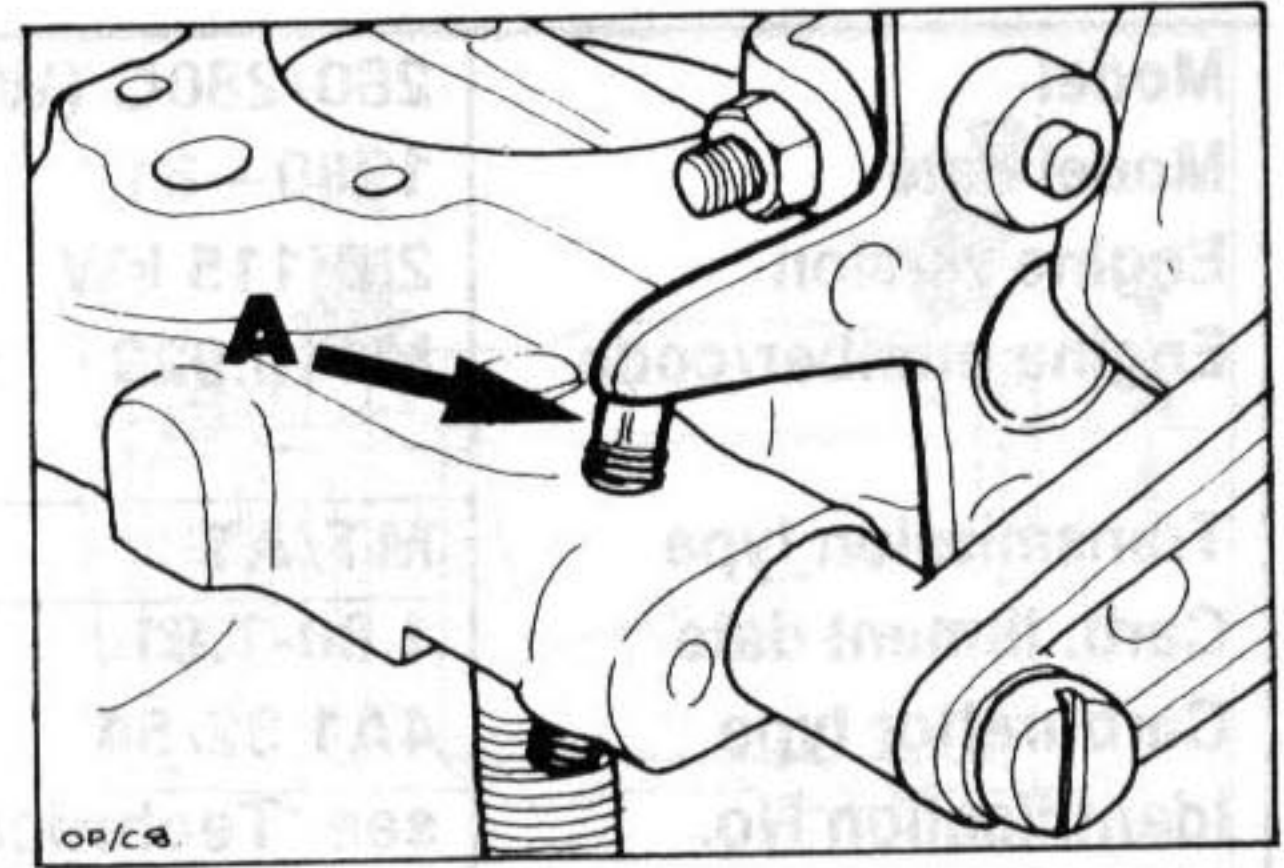


Fig. 8 Throttle stop screw (Stage II)

- If adjustment is necessary, adjust with stop screw (D).

ADJUSTMENTS, Carburettor removed

5. THROTTLE VALVE GAP - STAGE II

- Slacken stop screw (A) until it is just touching stop screw on throttle lever (Fig. 8).
- Screw stop screw in about 1/4 turn and secure with locknut.
- Check that a light gap of approximately 0,05 mm exists between edge of throttle plate and carburettor wall.
- With throttle plate in idle position, slacken stop screw (B) until it is just touching throttle lever (Fig. 9).
- Screw stop screw in 0,1 - 0,2 mm against throttle lever, and secure with locknut.

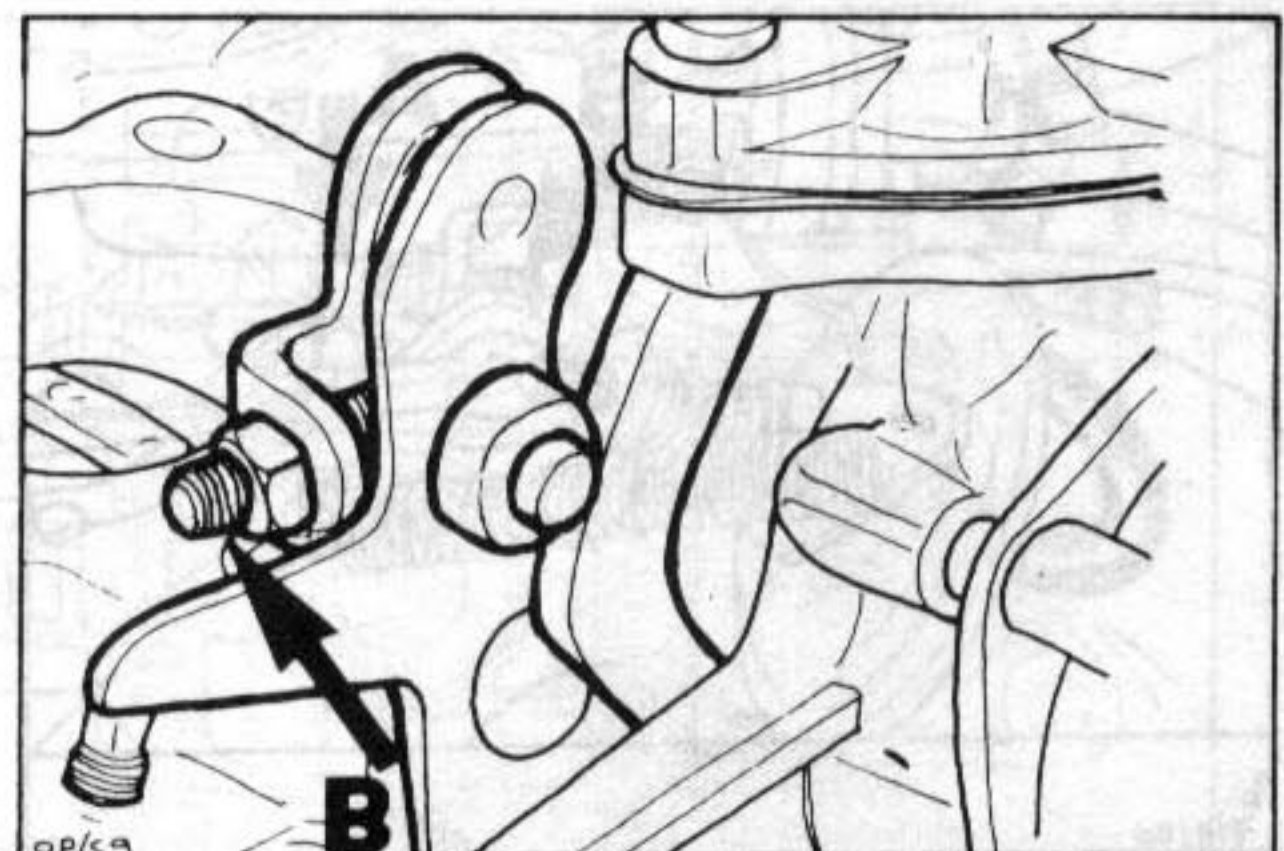


Fig. 9 Roller travel adjustment

Model	280/280C (W123)	280S (W116)	280S (W126)
Model date	1980—81	1980	1980—86
Engine version	2,8/115 kW	2,8/115 kW	2,8/115 kW
Engine number/code	M110.923	M110	110.924
Transmission type	MT/AT	MT/AT	MT/AT
Carb. fitment date	1.80-7.81	1.80-6.80	3.80—86
Carburettor type	4A1 32/54	4A1 - 32/54	4A1 - 32/54
Identification No.	see 'Technical Data'		

ADJUSTMENTS, Carburettor installed

1. TAMPERPROOFING

Tamperproof seals are fitted to most of the carburettor adjustment screws to prevent indiscriminate tampering with the settings. If adjustment of any of these screws is necessary the seal must be removed using pliers or a screwdriver.

2. IDLE ADJUSTMENTS

2.1 Preparatory Conditions

- All other engine functions (valve clearances, ignition system) correctly adjusted. See Introduction.
- Induction system without leaks
- Engine at normal operating temperature (Oil temp. 70 - 80°C).
- Air cleaner in position.
- Crankcase breather detached (and hose end plugged).
- Choke valve fully open.
- On vehicles with automatic transmission, selector lever in position 'P'.
- On vehicles with Tempomat (cruise control) the Bowden cable should rest free of tension against control lever.
- All electrical components switched off (Also air conditioning unit where applicable).
- Test instruments (rev-counter and exhaust gas analyser) connected in accordance with manufacturer's instructions.

2.2 Idle Speed & CO Level

Specification: 800 - 900 rpm
7.81— 700 - 800 rpm
0,7 ± 0,5 % CO

- Check that throttle lever (A) rests against throttle stop screw (B), (Fig. 1).
- Run engine at fast idle for about half a minute. Allow engine to idle and note idle speed.
- If outside specified limits, remove tamperproof cap and adjust by turning idle speed adjusting screw (B) at throttle lever (Fig. 1).
- Similarly, check idle CO content level. For this purpose, unscrew closing plugs from two exhaust gas draw-off pipes (arrowed) at exhaust manifolds and connect two exhaust gas measuring lines with Y-piece adaptor to CO meter (Fig. 2).
- Close off line 'B' with clamp and note emission value for cylinders 1 - 3 (exhaust gas measuring line 'A'). Transfer clamp to line 'A' and read off emission value for cylinders 4 - 6 (exhaust gas measuring line 'B'). Both values should be equal.
- If values are not equal, remove tamperproof plugs from two idle mixture adjustment screws and turn screws as necessary to correct (Fig. 3).
- Check total emission value without clamp on either measuring line.
- If outside specified limits, adjust by turning both mixture adjustment screws by equal amounts.
- Again run engine at fast idle for about half a minute, then recheck

- settings and readjust if necessary.
- Adjust throttle vacuum governor as detailed under appropriate heading.

3. THROTTLE VALVE VACUUM GOVERNOR

The throttle valve vacuum governor acts to hold the throttle valves in the first stage slightly open when the engine is stopped and during starting.

3.1 Cold Starting Speed

- Run engine at idle speed and pull off vacuum hose from throttle valve vacuum governor.
- Check engine speed. This should have risen to 2000 rpm.
- If necessary, adjust engine speed to this figure by turning adjusting screw (A) as appropriate (Fig. 4). Hold diaphragm rod by flats to prevent it turning when loosening or tightening adjusting screw locknut (B).
- When adjustment is completed, re-connect vacuum governor hose.

3.2 Compression Spring - Man. Trans.

- With engine idling, check gap between end of adjusting screw (A) and throttle valve lever (D), (Fig. 4). This should be approximately 1,0 mm.
- If necessary, adjust gap by turning compression spring adjusting nut (C).

3.3 Compression Spring - Auto. Trans.

- With engine idling, engage selector lever in 'D' position. Engine speed

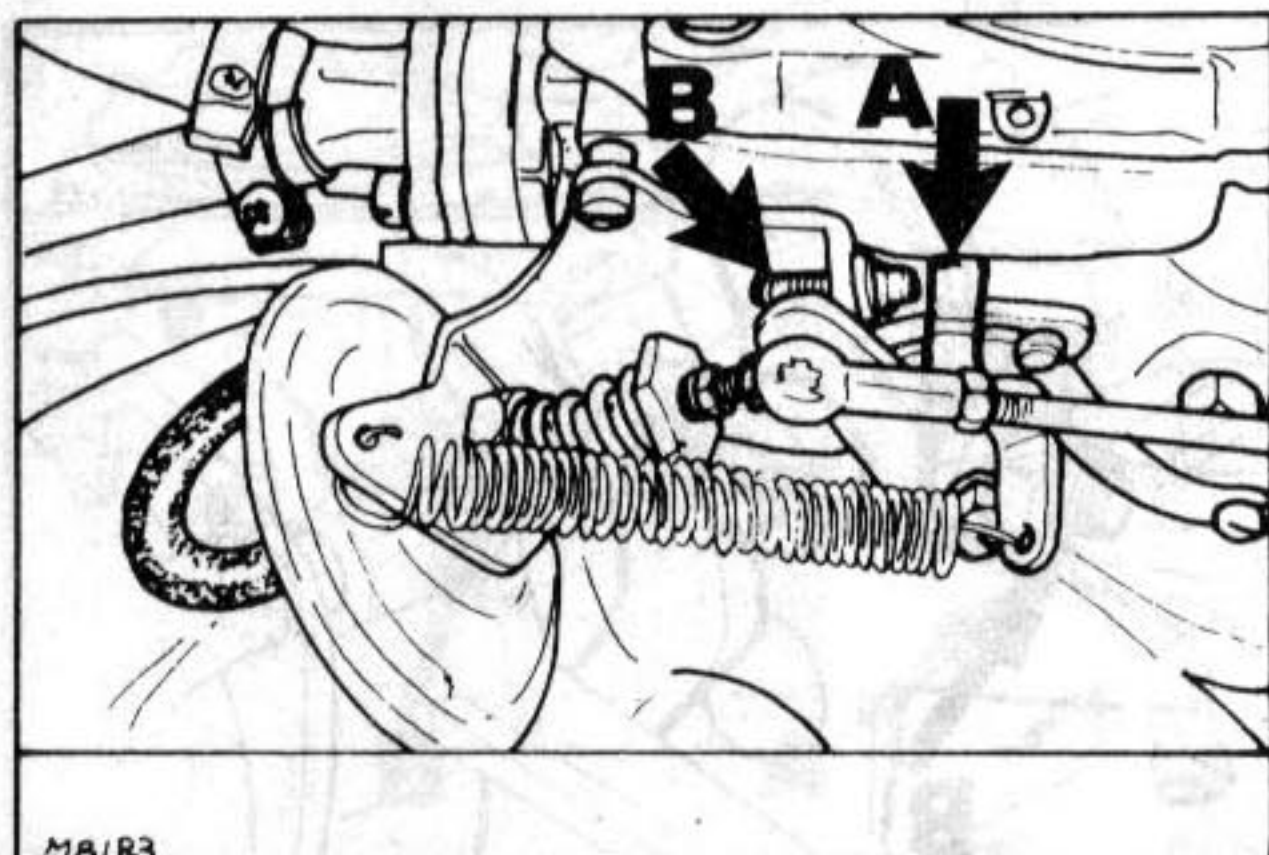


Fig. 1 Idle speed adjusting screw (B)

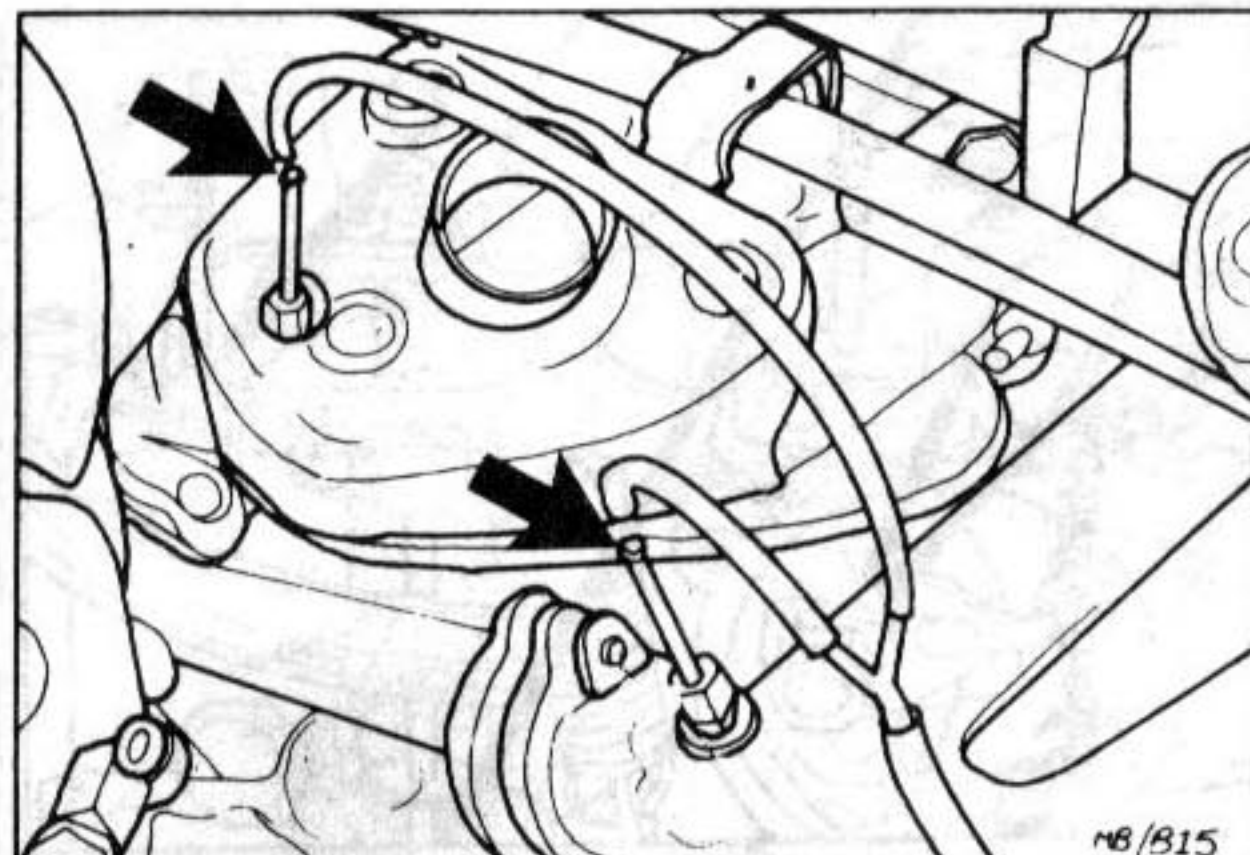


Fig. 2 CO meter connections

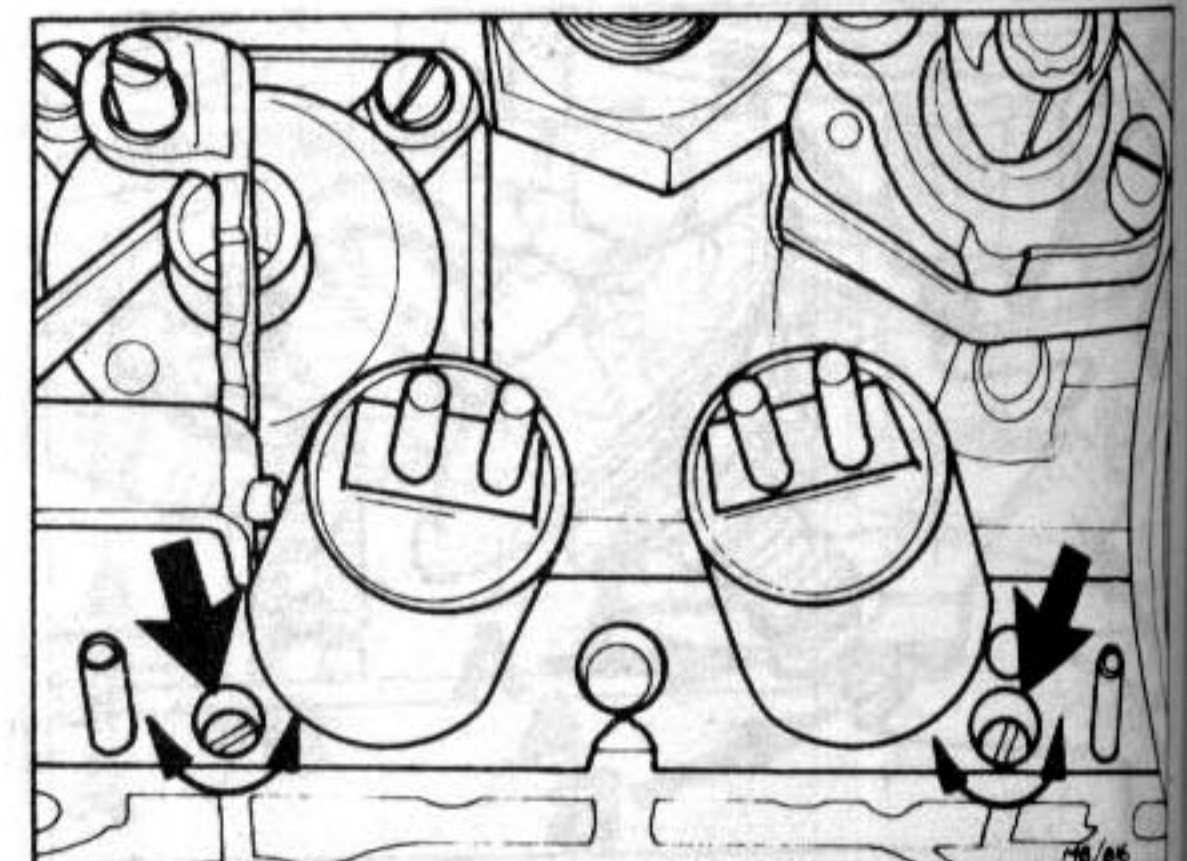


Fig. 3 Idle mixture adjustment screws

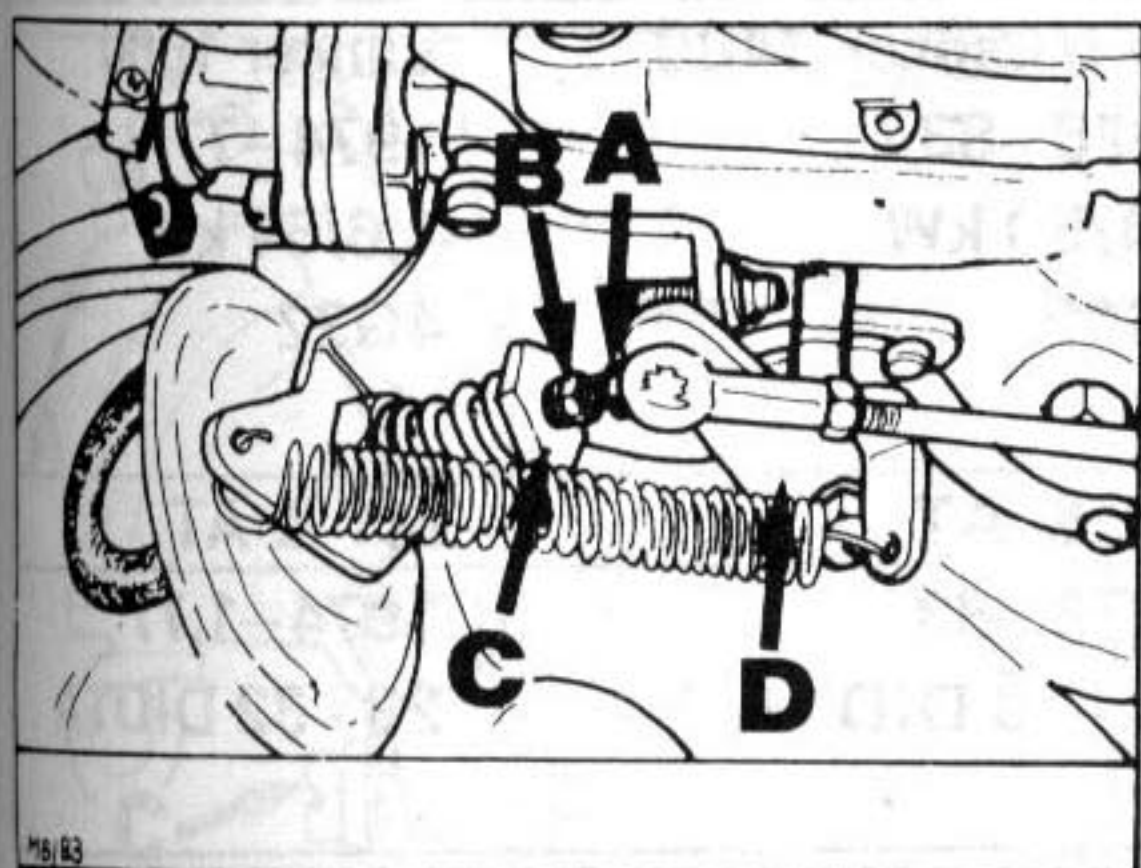


Fig. 4 Vacuum governor adjustment

should now be 600-700 rpm.

- If necessary, adjust engine speed to within these limits by turning compression spring adjusting nut (C) as appropriate (Fig. 4).
- Turn power steering onto full lock and switch on air conditioning unit, where fitted. Engine should continue to run smoothly.
- If necessary, adjust engine speed slightly by means of adjusting nut (C, Fig. 4).

4. CHOKE VALVE GAP

Specification: see 'Technical Data'

- Remove air cleaner assembly.
- Start engine and allow to idle. Engine must be at normal operating temperature.
- At rear of choke housing, push driving lever (A) up to noticeable stop, using a screwdriver (Fig. 5).

Special Note:

Do not push driving lever too strongly against stop, as this may cause diaphragm in pull-down unit to be pulled back and result in measuring errors.

- Check gap between lower edge of choke plate and air intake wall, with suitable size of gauge or drill (B). Ensure drill/gauge is a tight fit to eliminate play in choke linkage.
- If clearance is outside specified limits, adjust by turning adjusting screw at pull-down diaphragm housing (Fig. 6). Screwing in reduces gap, and vice-versa.

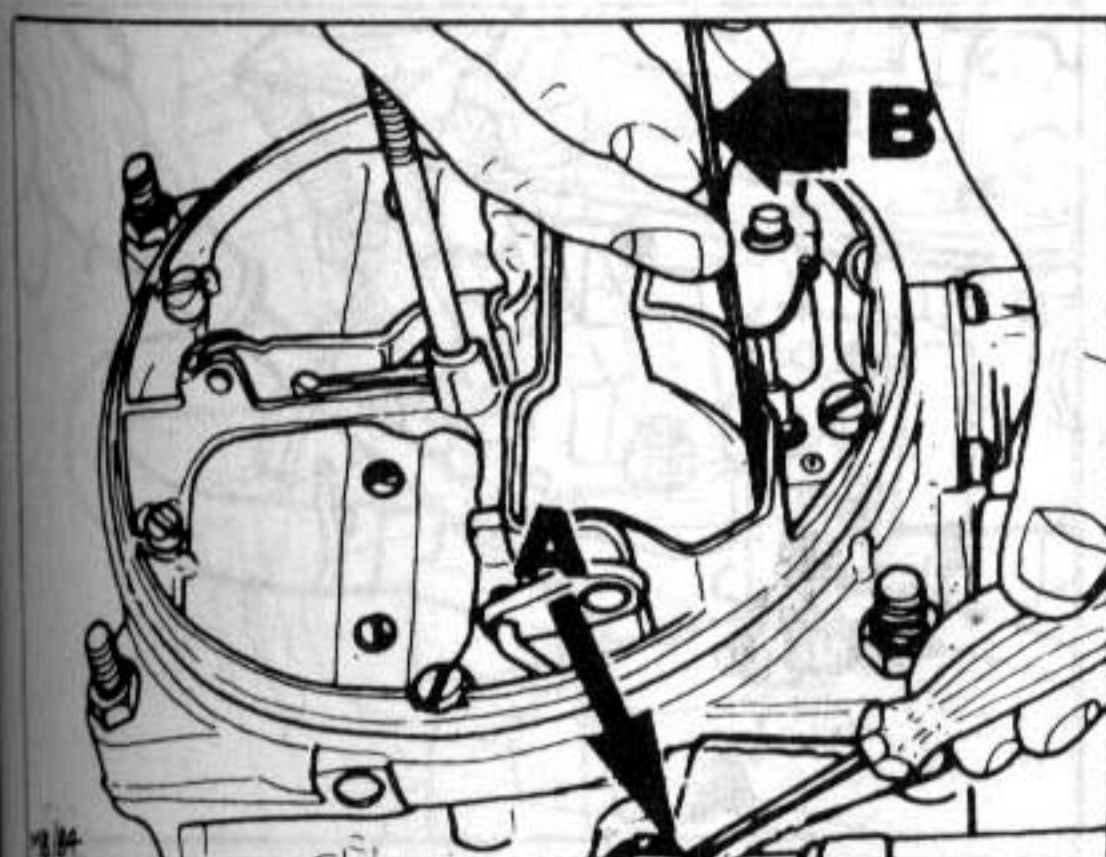


Fig. 5 Checking choke valve gap

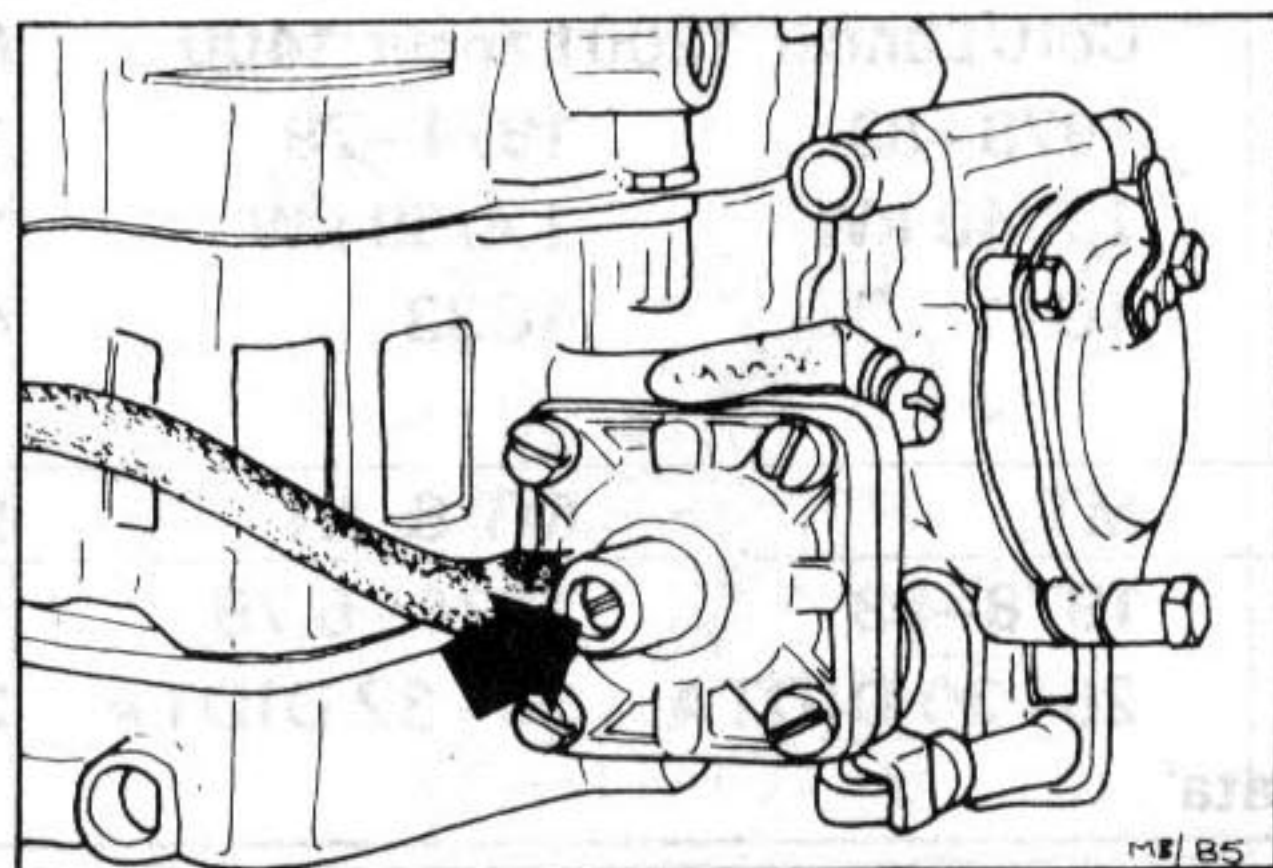


Fig. 6 Choke gap adjustment screw

Special Note:

If choke gap changes during adjustment, or if gap is too small, pull-down diaphragm should be checked for leaks.

- Refit air cleaner assembly.
- Finally, check cold starting speed as detailed under 'THROTTLE VALVE VACUUM GOVERNOR' previously.

5. ACCELERATOR PUMP

5.1 Stroke Limiter Screw

- With engine running at idle, disconnect vacuum hose from throttle valve vacuum governor, then stop engine.
- Check that throttle lever (A) rests against throttle stop screw (B, Fig. 1).
- Check that pump lever just contacts pump plunger without play, but does not push plunger in.
- If necessary, adjust by turning nut (A) on pump link rod in appropriate direction (Fig. 7).
- Check clearance (x) between end of stroke limiter screw and pump cover. This should be 4,0 mm for M123 engine; 4,5 mm for M110 engine.
- If necessary, adjust by turning screw (B) in appropriate direction.

5.2 Injection Jet

With air cleaner removed, operate throttle slowly and observe injection nozzles in carburettor venturis. A uniform jet of fuel should be ejected immediately from both nozzles. Fuel jet should not come into contact with

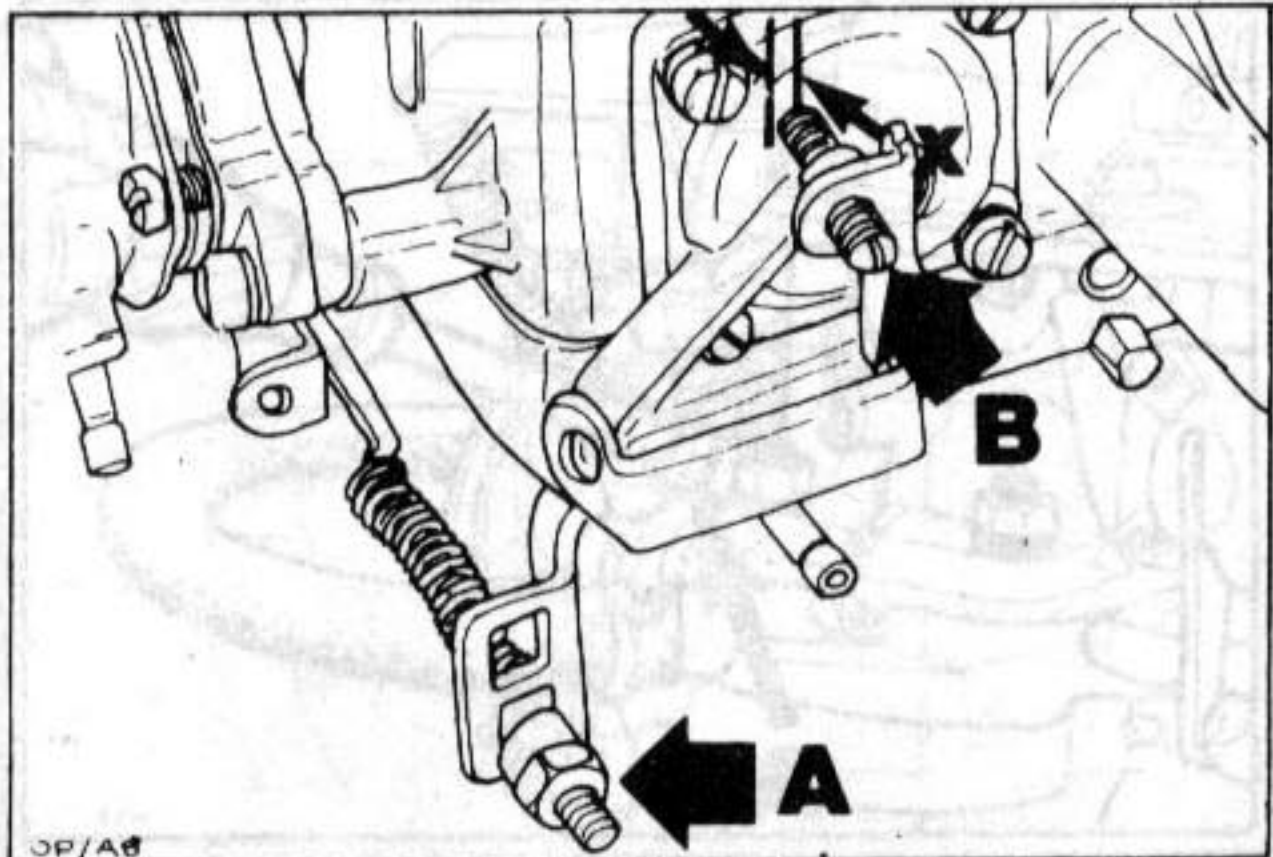


Fig. 7 Checking accelerator pump setting

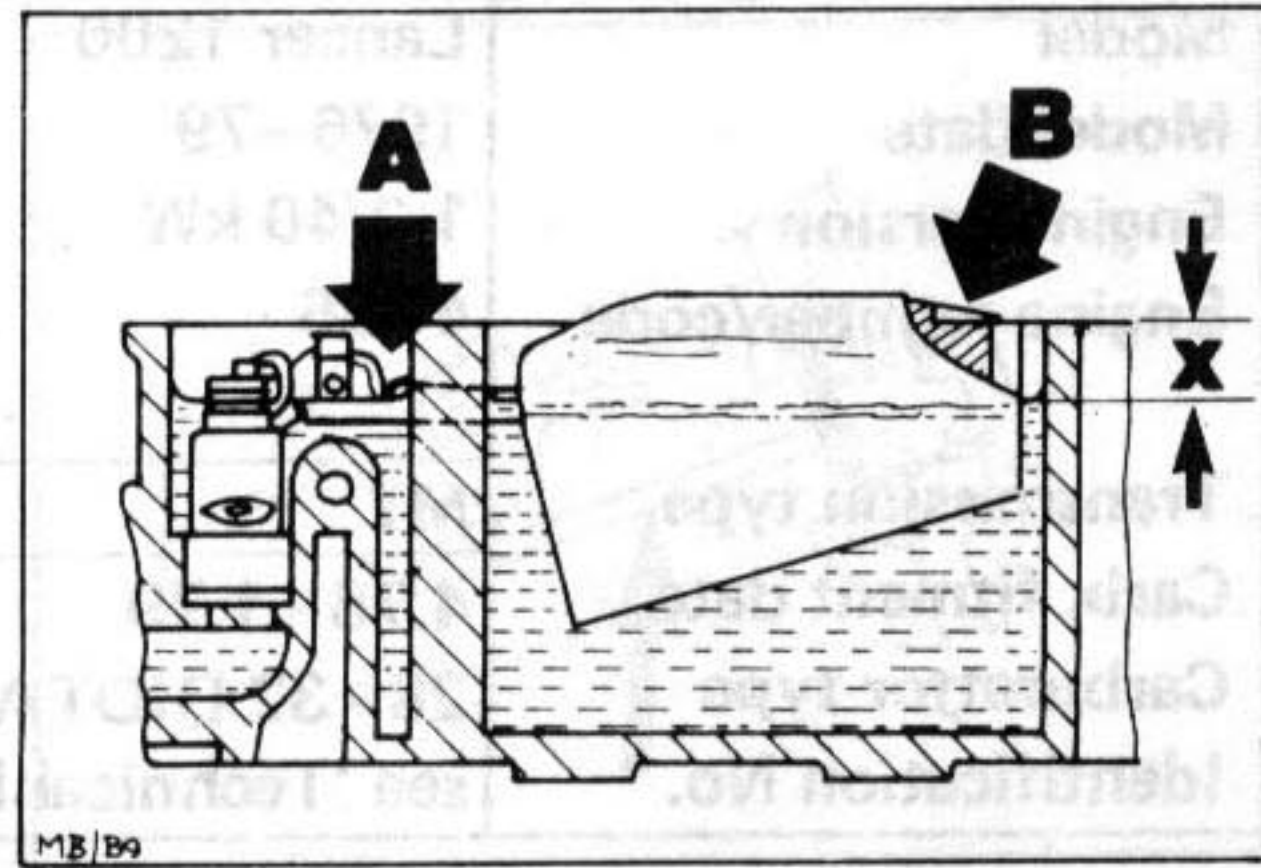


Fig. 8 Checking float level setting

venturi edge or pre-atomiser.

6. FUEL LEVEL

Specification: 250 = 5 ± 1mm
280 = 7 ± 1mm

- Remove carburettor top cover.
- Fill float chamber with petrol through fuel inlet connection, using a test pressure of 2 mWS (0,2 bar), until fuel level is constant.

Special Note:

To avoid measuring errors, make sure that float pivot pin is always resting on bottom of its housing during check.

- Using a depth measuring gauge, measure distance (x) (Fig. 8) from face of carburettor housing without gasket to surface of fuel at edge of float chamber at a point 18 mm from float centre-line (Fig. 9).
- If dimension is outside specified limits, remove float and bend arm in appropriate direction at point (A) immediately in front of pivot pin hole to achieve correct setting.
- Refit carburettor top cover, using a new gasket.

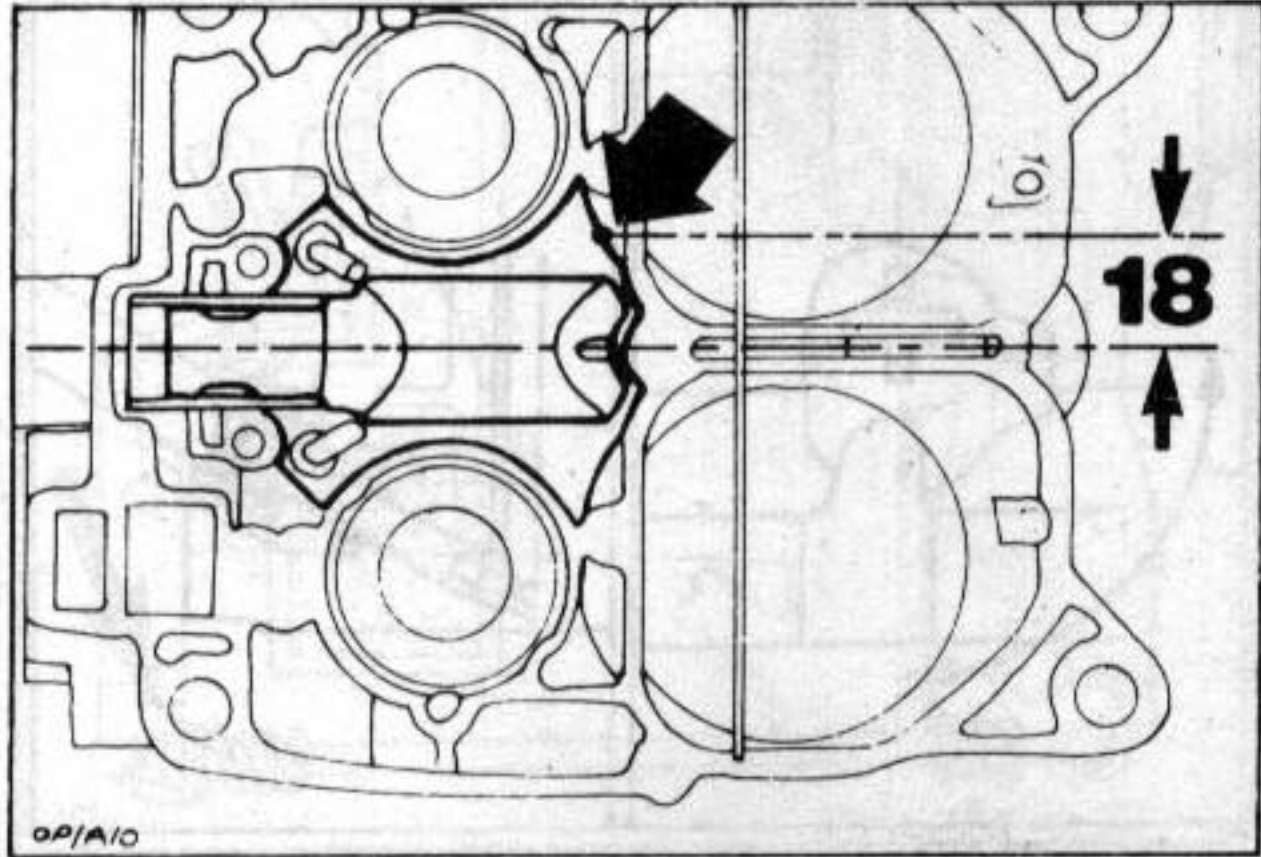


Fig. 9 Fuel level checking point