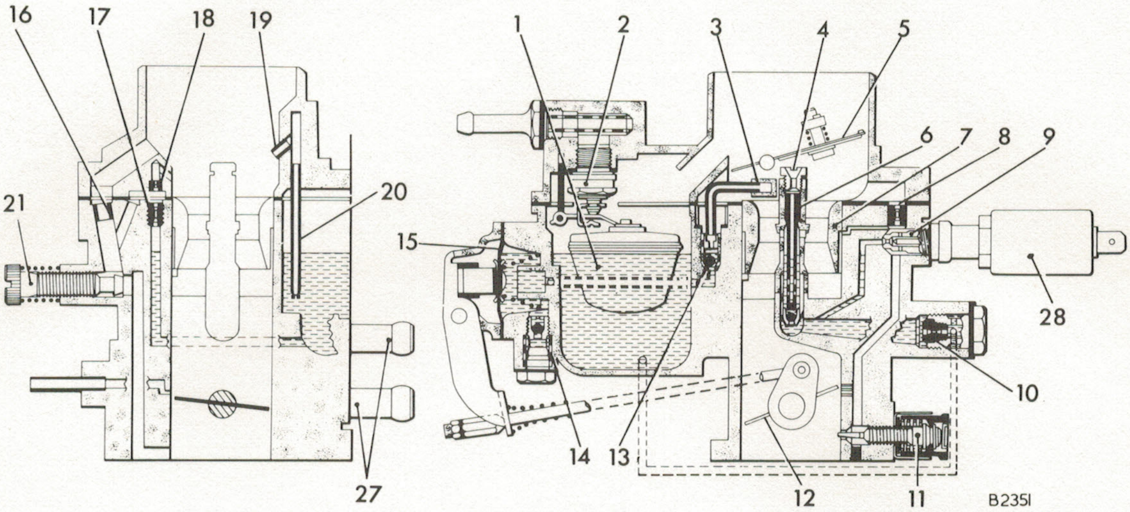
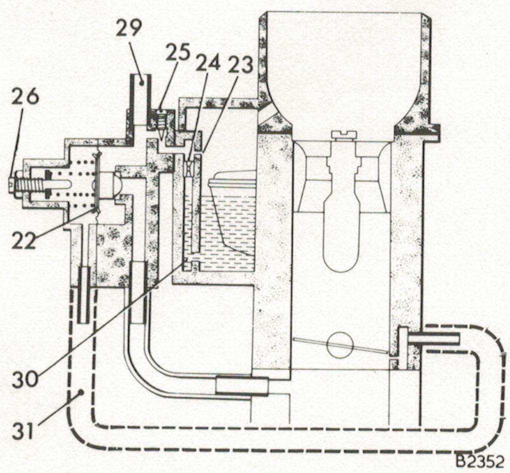
SOLEX TYPE F 34 BICMA 113

Description – Solex Type F34BICMA 113



1. FLOAT
2. FLOAT NEEDLE
3. CALIBRATED INJECTOR
4. AIR CORRECTION JET
5. CHOKE FLAP VALVE (INCLUDING POPPET VALVE)
6. EMULSION TUBE
7. CHOKE TUBE
8. AERATION PIN
9. IDLING FUEL JET
10. MAIN JET
11. MIXTURE SCREW
12. THROTTLE BUTTERFLY
13. BALL VALVE
14. BALL VALVE
15. MEMBRANE
16. CALIBRATED TUBE
17. CALIBRATED BLEED TUBE
18. CALIBRATED PIN
19. INJECTOR TUBE
20. CALIBRATED TUBE
21. MIXTURE VOLUME TUBE (IDLING)
27. HOT WATER BY-PASS CIRCUIT
28. STOP CONTROL SOLENOID

Fig. 1 *Section of Solex carburettor – F34 BICMA 113*



22. MEMBRANE ASSEMBLY
23. CALIBRATED AIR BLEED
24. FUEL CALIBRATION JET
25. MIXTURE ADJUSTMENT SCREW
26. MEMBRANE ADJUSTMENT SCREW
29. AIR CLEANER CONNECTION
30. PETROL CHANNEL FROM FLOAT CHAMBER
31. HOSE

Fig. 2 *Deceleration valve*

SOLEX CARBURETTOR F 34 BICMA 113

2 Litre Engine

DESCRIPTION

The Solex F34 BICMA 113 constant CO (carbon monoxide) carburettor is a single, downdraft type with a water heated body. It has a constant float level, acceleration pump, econostat, deceleration device and manual choke of the strangler type with poppet valve. The idling, by-pass progression and constant CO circuits have fixed jets.

The idle mixture screw is fitted with a tamper proof cap to prevent adjustment of the mixture by unqualified people.

The throttle valve stop screw is pre-set and fitted with a cap, and is not a means of adjusting the idling speed.

OPERATION

Float Chamber (Fig. 1)

The level of fuel in the float chamber is controlled by the slight rise and fall of the float (1) closing or opening the float needle (2) to cut off or admit fuel from the fuel pump as required. A spring wire on the float needle passes under the float arm so that a lowering of fuel level and float positively moves the needle from its seat.

The float chamber is vented into the air horn to ensure that the fuel is not contaminated by dust particles.

Choke Flap (Fig. 1)

The choke flap is remotely controlled by a cable and is used to assist in starting the engine when cold.

The system consists of a flap (5) that can completely close off the carburettor air intake. The flap is fitted with a poppet valve held closed by a rated spring. The choke pivot pin carries a lever which is connected to the fast idling lever mounted on the main throttle butterfly shaft.

A system incorporating a ball and a spring, mounted behind the choke flap lever, locks in the partially open position and in the fully open position.

FUEL SYSTEM – Carburettors

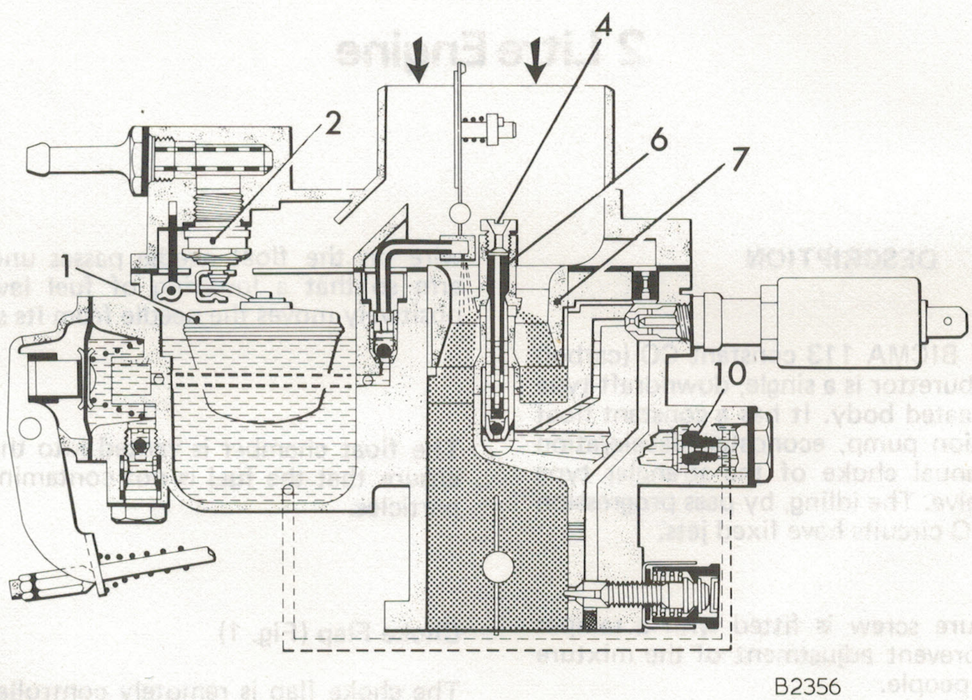
Description – Solex Type F34BICMA 113

Main Spraying Circuit (Fig. 3)

A constant level in the float chamber is maintained by the float needle (2) and float (1).

At normal speeds the mixture supply to the engine is through the main jet (10) for fuel and through the choke tube (7) for air.

Correction of the air/fuel ratio is by means of a calibrated air supply by the air correction jet (4) and the emulsion tube (6).



1. FLOAT
2. FLOAT NEEDLE
4. AIR CORRECTION JET
6. EMULSION TUBE
7. CHOKE TUBE
10. MAIN JET

Fig. 3 *Main spraying circuit*

Idling and Constant CO Circuit (Fig. 4 and 5)

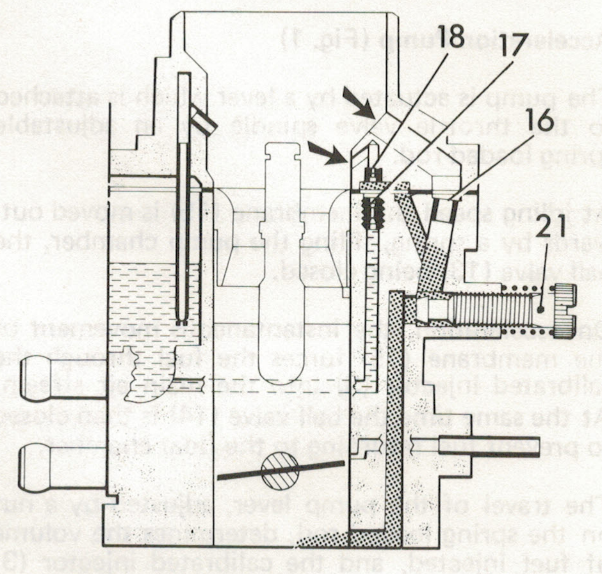
The idling system has two circuits. The principle circuit (Fig. 4) is through the orifice controlled by the conventional tamper proofed mixture screw (11). Fuel, metered by the main circuit and calibrated by the idling fuel jet (9) is emulsified by the air entering through the air channel aeration pin (8).

A stop control solenoid (28) operated by the ignition switch is fitted to the idling fuel jet (9). When the ignition switch is operated the solenoid opens the principle idling circuit, with the ignition switch in the "OFF" position the solenoid closes the idling circuit preventing possible run-on with a hot engine.

The additional "constant CO" circuit (Fig. 5) allows variation of the engine speed without appreciably altering the pre-set carburettor mixture.

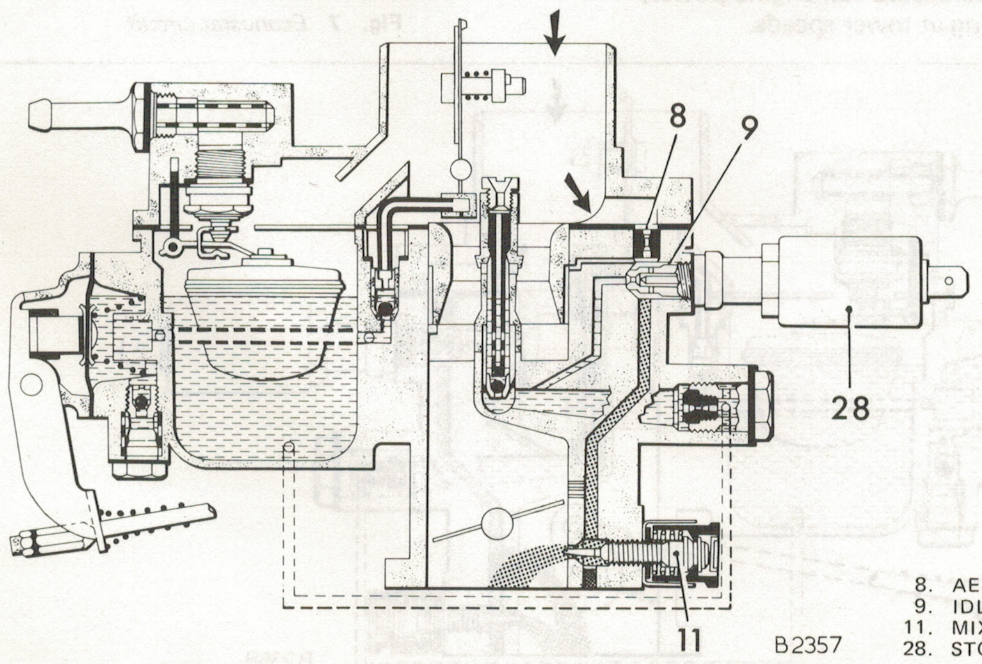
The fuel metered by the calibrated bleed tube (17) is emulsified with the air calibrated by the pin (18). The emulsion is additional to the air taken in below the float chamber calibration (16), the mixture volume thus formed being controlled by the volume screw (21).

Adjustment to the engine idling speed should be made only by altering the volume screw (21). The mixture screw (11) fitted with a tamper proof cap is set at the factory with precision flow equipment, and should only be altered and a new tamper proof cap fitted by authorised dealers using the necessary specialist equipment.



16. CALIBRATED TUBE
17. CALIBRATED BLEED TUBE
18. CALIBRATED PIN
21. MIXTURE VOLUME TUBE (IDLING)

Fig. 5 *Constant "CO" circuit*



8. AERATION PIN
9. IDLING FUEL JET
11. MIXTURE SCREW
28. STOP CONTROL SOLENOID

Fig. 4 *Idling circuit*

Description – Solex Type F34BICMA 113

Progression (Fig. 6)

Smooth progression from idling to main spraying circuit is made by a by-pass supplied by the principle idling circuit. As the throttle valve is opened the depression concentrated at the by-pass will provide an increased emulsion flow through the throttle body.

Acceleration Pump (Fig. 1)

The pump is actuated by a lever which is attached to the throttle valve spindle by an adjustable spring loaded rod.

At idling speed the membrane (15) is moved outwards by a spring, filling the pump chamber, the ball valve (13) being closed.

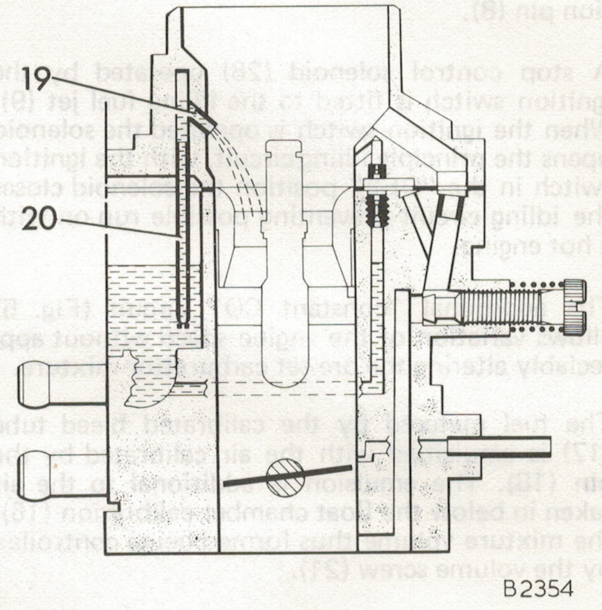
On acceleration, the instantaneous movement of the membrane (15) forces the fuel through the calibrated injector (3) into the main air stream. At the same time the ball valve (14) is then closed to prevent fuel returning to the float chamber.

The travel of the pump lever, adjusted by a nut on the spring loaded rod, determines the volume of fuel injected, and the calibrated injector (3) controls the rate of flow.

Econostat (Fig. 7)

The econostat maintains normal mixture strength at high engine speeds to ensure full engine power, and a minimum metering at lower speeds.

It consists of an injector tube (19) which is supplied directly by the calibrated tube (20) immersed in the float chamber. It is brought into operation by the depression created by the air flow when this attains a certain velocity.



19. INJECTOR TUBE
20. CALIBRATED TUBE

Fig. 7 *Econostat circuit*

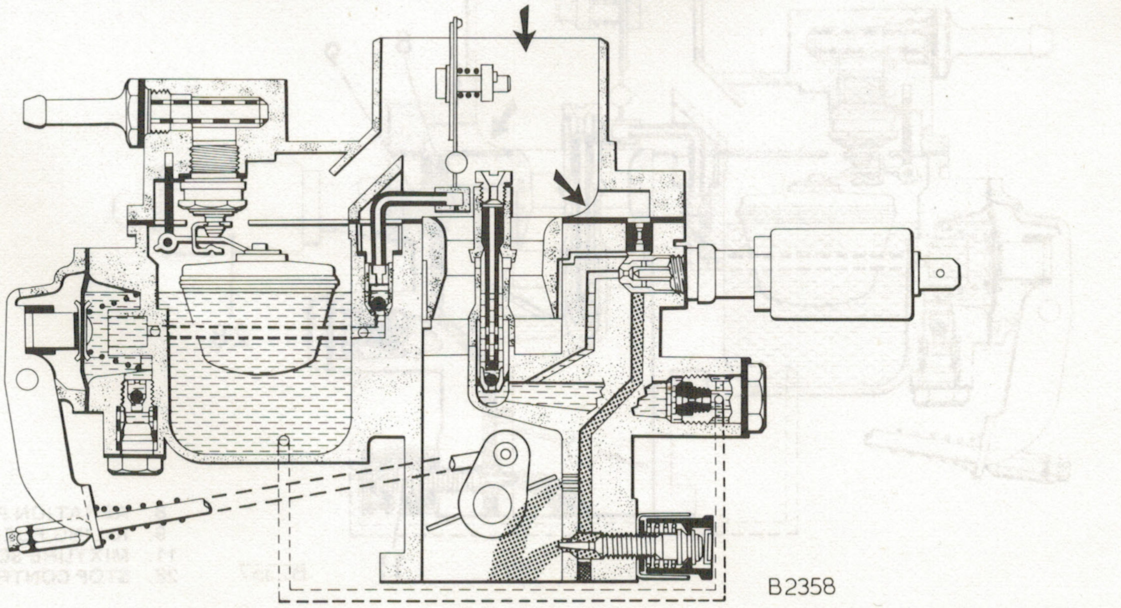


Fig. 6 *Progression circuit*

Deceleration

The deceleration valve is integral with the carburettor and is controlled by the pneumatic valve to provide mixture additional to the idling circuit during overrun. On early vehicles the pneumatic valve is fitted separately, away from the carburettor. On later vehicles the pneumatic valve is integral with the deceleration valve on the carburettor.

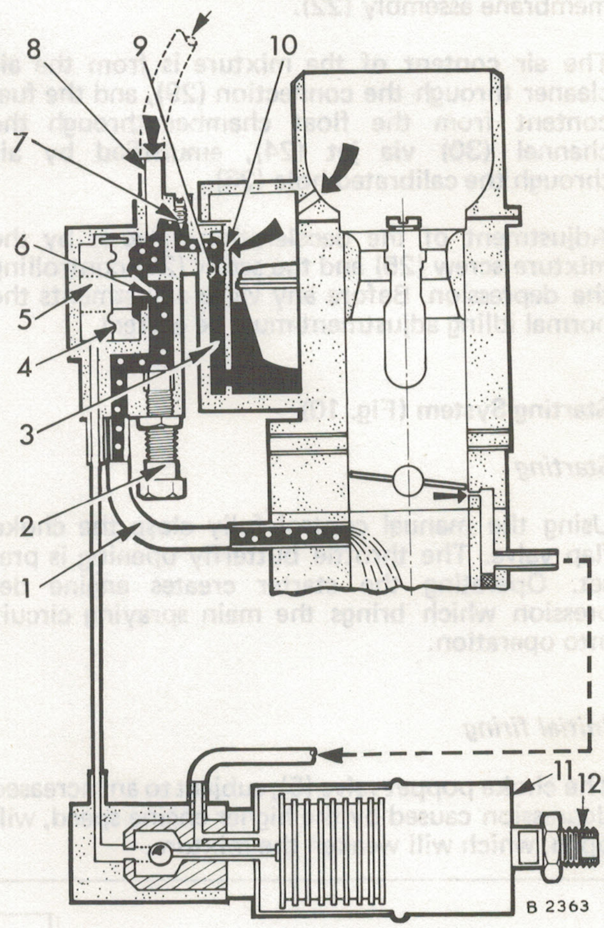
Operation – Early vehicles (Fig. 8)

On overrun the high manifold depression taken from below the throttle butterfly, opens the pneumatic valve (11). This depression is transmitted to the chamber (5) of the deceleration valve, acting on the membrane (4) to open the valve (6) and supplying mixture to the manifold through the hose (1).

The air content of the mixture is from the air cleaner through the connection (8) and the fuel content from the float chamber through the channel (3) via jet (9), emulsified by air through the calibrated hole (10).

The pneumatic valve adjustment only allows it to be open for a few seconds, when it will automatically close, shutting off the manifold depression to the deceleration valve. Valve (6) closes, shutting off the additional mixture so that the engine runs on its normal idling circuit.

Adjustment of the deceleration valve is by the mixture screw (7) and the volume screw (2), but only after the normal idling adjustment is correct. Adjustment of the pneumatic valve is by the screw (12).



1. HOSE
2. VOLUME SCREW
3. PETROL CHANNEL FROM FLOAT CHAMBER
4. MEMBRANE
5. VACUUM CHAMBER
6. CUT-OFF VALVE
7. MIXTURE ADJUSTMENT SCREW
8. AIR CLEANER CONNECTION
9. PETROL JET
10. CALIBRATED AIR BLEED
11. PNEUMATIC VALVE
12. PNEUMATIC VALVE ADJUSTMENT SCREW

Fig. 8 *Deceleration valve – early vehicles*

Description – Solex Type F34BICMA 113

Operation – Later vehicles (Fig. 9)

On overrun the high manifold depression taken from below the throttle butterfly, controls the opening of the deceleration valve by acting on the membrane assembly (22).

The air content of the mixture is from the air cleaner through the connection (29), and the fuel content from the float chamber through the channel (30) via jet (24), emulsified by air through the calibrated hole (23).

Adjustment of the deceleration valve is by the mixture screw (25) and the screw (26) controlling the depression. Before any valve adjustments the normal idling adjustment must be correct.

Starting System (Fig. 10)

Starting

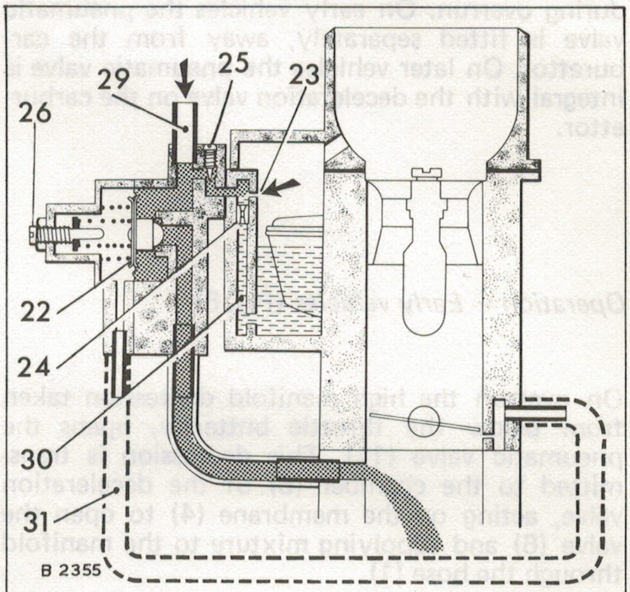
Using the manual control fully close the choke flap valve. The throttle butterfly opening is pre-set. Operating the starter creates engine depression which brings the main spraying circuit into operation.

Initial firing

The choke poppet valve (5), subject to an increased depression caused by the higher engine speed, will open, which will weaken the mixture.

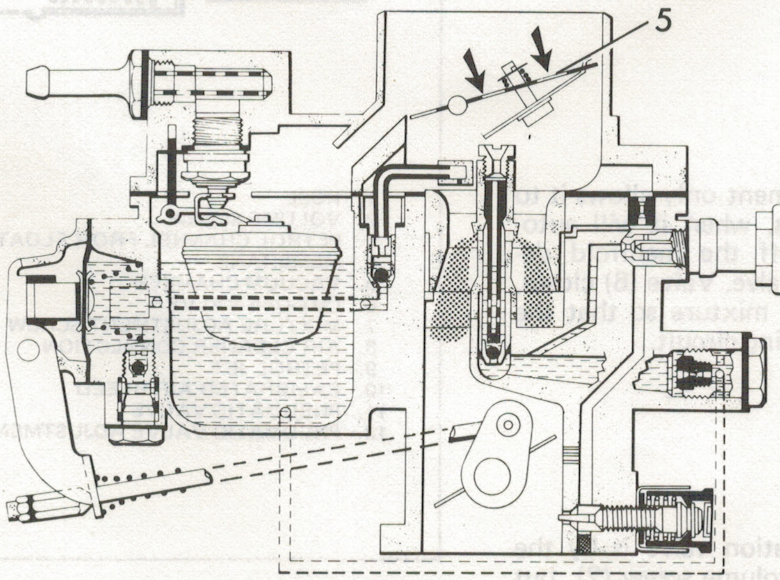
Engine running

The poppet valve will take up a position that balances depression against the spring. The manual control allows the engine speed to be adjusted in accordance with the rising temperature.



22. MEMBRANE ASSEMBLY
23. CALIBRATED AIR BLEED
24. FUEL CALIBRATION JET
25. MIXTURE ADJUSTMENT SCREW
26. MEMBRANE ADJUSTMENT SCREW
29. AIR CLEANER CONNECTION
30. PETROL CHANNEL FROM FLOAT CHAMBER
31. HOSE

Fig. 9 *Deceleration valve circuit*



5. CHOKE FLAP VALVE (INCLUDING POPPET VALVE)

Fig. 10 *Starting circuit*