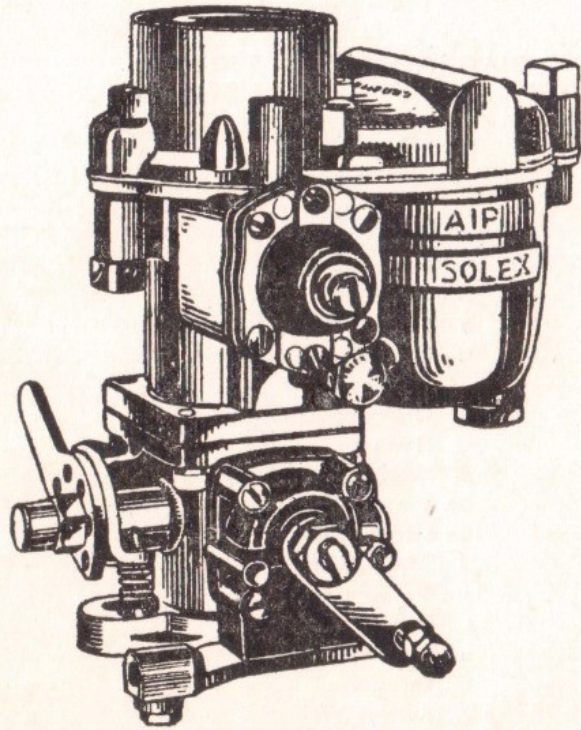


**DESCRIPTIVE  
LEAFLET**



**SOLEX**

**Model  
30 A.I.P.  
(Downdraught)**

# Downdraught SOLEX Carburettor Model 30 A.I.P.

## DESCRIPTION . . .

Solex type 30 A.I.P. was a model current in the years 1937/8. It was, however, quickly superseded by a technically improved Carburettor still produced and now very popular, viz.:— model 30 FAL.

Many thousands of Carburettors, type 30 A.I.P., are still giving good service, and this leaflet is produced for the benefit of owners requiring an explanation of "how it works."

### Bi-Starter.

The Solex "bi-starter" is a small auxiliary Carburettor integral with the main unit to ensure easy starting and "get away" from cold.

The starter air jet, GA., and petrol jet, GS., meter the air and petrol in correct proportion for this purpose.

To start the engine when cold, proceed as follows:

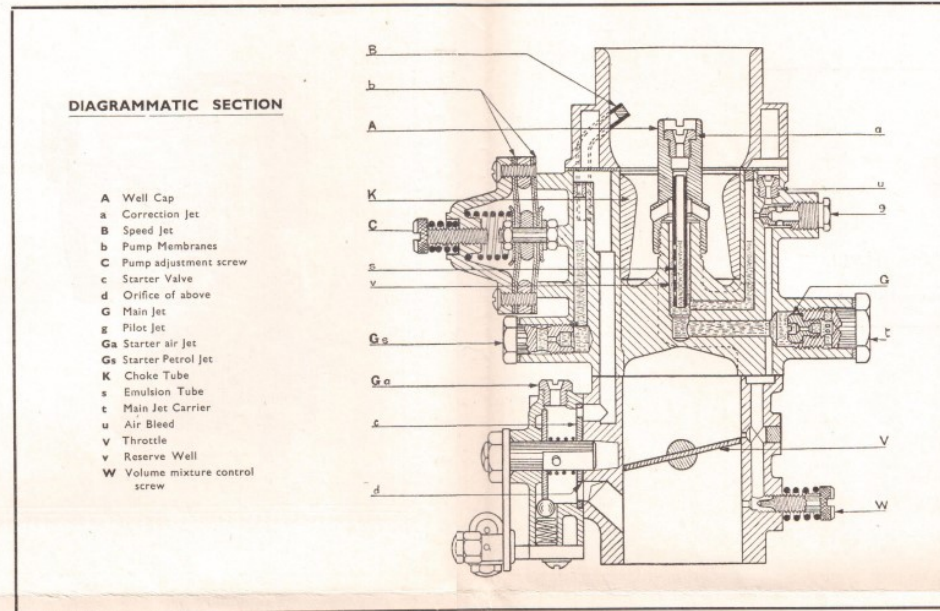
- (a) Pull out the dashboard control (rich mixture) fully, and operate the electric starter.
- (b) Almost immediately after starting, as the engine begins to warm up, push the dashboard control into the "bi-starter" position, i.e., approximately half way, when a marked resistance will be felt, indicating that the outer disc of the starter valve, c., has registered with the spring-loaded ball, which registers the correct position.
- (c) As soon as the engine is warm enough (usually after driving a few hundred yards) to continue running without risk of stalling, push the dashboard control fully home.

### Slow Running (Idling).

When idling, the mixture is provided by the pilot jet, g., the air bleed, u., and the volume control screw, W., the last decreasing the mixture strength by clockwise rotation and vice versa.

### Normal Running.

For normal running above idling speed the engine is provided with the correct mixture for all speeds by the main spraying assembly. Petrol is provided by the main jet, G., and the main air supply for disintegration of the petrol by the choke tube, K. The correct balance of mixture is further automatically maintained by an additional air supply in the form of a calibrated jet, called the air correction jet, a.



## Main Carburettor . . . . . FUNCTION

Study now the diagram in conjunction with the following description:—

It is not possible in the sectional illustration to depict the float chamber, but it is of conventional design carrying a float which closes a needle valve when the float chamber is full of petrol.

Petrol from the float chamber passes through the main jet, G., into the spraying well surmounted by the cap, A., via the reserve well, v., where it meets air drawn downwards via the calibrated air correction jet, a. This passes out through the emulsion holes, ch., into the annulus, where an emulsion is formed with the petrol, and the resultant mixture rises to the four spraying orifices, of which two are shown in the waist of the choke tube, K. Here the emulsion is absorbed by the main air current and passes down to the induction pipe of the engine via the butterfly throttle, V.

pheric side of the by-pass orifice, so that both this, and that controlled by the screw, W., function as petrol delivery orifices, thereby proportionately enriching the output at the transfer position between the pilot and main supplies and preventing lean flat spot which might otherwise occur.

### Membrane Pump.

This consists of a chamber divided, approximately, in half by a double spring loaded pair of membranes, b., the movement of which to the left is determined by adjustment of the screw, C. The chamber on the left of the membranes communicates with the throttle chamber on the engine side of the throttle, and is therefore in a position of high vacuum when the engine is idling. Thus, when the throttle is closed and the engine idling, the heavy suction in this chamber pulls the membranes to the left, compressing the spring. Simultaneously, the chamber on the right of the membranes fills with petrol drawn from the channel above the starter Petrol Jet, GS.

When the throttle is suddenly opened to accelerate, the vacuum in the left hand chamber is relieved, the spring projects to the right, the membranes, b., and the petrol in the right-hand chamber is ejected into the air stream via the speed jet, B.

### Speed Jet.

The speed jet, B., besides functioning as shown has a further purpose in the speed range, as follows:—

When the throttle is well open, the pump, of course, has done its work, and has no further part in the running of the engine until the throttle closes again. In the meantime, however, depression develops in the area around the speed jet, B., and lifts the petrol column from below it (see dotted lines indicating the length of the speed jet).

It will thus be seen that at a prescribed position of throttle opening this jet again functions to supplement the output of the main jet, G., to give the maximum mixture strength and volume for full power. The size of this jet, which is in fact a calibrated tube, is calculated in accordance with our findings on tests, and should never be altered without reference to us. It can be removed for cleaning, if necessary, though we have yet to hear of such necessity, by carefully unscrewing in an anti-clockwise direction with a pair of pliers.

### Setting the Idling.

The idling is effected by petrol drawn from the reserve well, v., via a small channel which will be seen emerging therefrom immediately above the larger horizontal lead from the main jet. This it will be noted turns upwards and eventually passes through the pilot jet, g., into the downwardly disposed tract communicating with the idling orifice controlled by the spring loaded and knurled-headed taper screw, W.

W.—It will be noted that this orifice is on the engine, i.e., suctional, side of throttle butterfly. A branch lead communicates with another orifice which enters the airway slightly on the atmospheric side of the almost closed throttle.

When the throttle is in the idling position, this duct, which we term the by-pass, acts as an air bleed upon the idling petrol supply and therefore prevents over-richness when the engine is actually idling. Directly the throttle opens, the butterfly passes to the atmos-

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## GENERAL NOTES

### **Starting the Engine When Hot.**

If, particularly in summer, the engine does not start immediately, depress the foot accelerator, operate the electric starter button, and do not release the accelerator until the engine starts. (With a hot engine, however, if the Carburettor is correctly adjusted and the ignition is in good order, it is normally possible to start the engine on the pilot jet output, i.e. without the use of the Solex starting device).

### **Adjusting the Idling.**

This adjustment is of considerable importance, and depends upon the mechanical perfection of the engine. Compressions should be equal, ignition in good order, and the induction system free from air leaks. The throttle "pull-off" spring must pull the throttle back to its stop, i.e., closed position, and all nuts, screws, etc., used in the assembly of the Carburettor must be tight. Note particularly that the volume control screw (W) has not been broken or distorted by over-tightening. If it has, a new screw must be obtained.

Normal adjustment is carried out as follows:—

1. Wait until the engine is hot.
  2. Set the throttle adjustment screw until the idling speed is on the high side.
  3. Slacken the volume control screw, W., until the engine begins to hunt.
  4. Screw it in very gradually until the hunting just disappears.
  5. If the engine speed is too high, reset the throttle screw to slow it down to idling speed of about 500 r.p.m.
  6. This may cause the resumption of slight hunting. If so, then turn the volume control screw gently in a clockwise direction until the idling is perfect.
- These adjustments must never be made with a cold engine.

### **Detecting and Remedying Defects.**

The carburettor should be kept in good condition. To clean it, remove the jets and blow through the channels with compressed air or a cycle pump. Make sure that all the assembly screws are tight. See that there is no side-play in the throttle spindle.

Do not forget to check and adjust if necessary, the ignition. Plugs and valve timing are two factors which play a considerable part in the performance of an engine.



# SOLEX LTD.

(Directors : Gordon Richards, H. Gorton)

SOLEX WORKS

223-231 MARYLEBONE ROAD, LONDON, N.W.1.

Telegrams : Solexcarb, Norwest, London. Telephone : PADdington 5011 (6 lines).