OPERATING INSTRUCTIONS FOR THE O.S. TYPE 4BK,4D,5B CARBURETTORS

This carburettor incorporates an automatic mixture control device which ensures that the engine receives a correctly balanced mixture of fuel and air at all throttle settings. It ensures steady revolutions and a smooth response to any change of the aircraft's attitude.

1. The Needle Valve
   - For adjusting the mixture strength when the throttle is fully open.
2. The Mixture Control Valve (Mixture control screw):
   - For adjusting the mixture strength at part-throttle and idling speeds, to obtain steady idling and smooth acceleration to medium speeds.
3. The Throttle Stop Screw:
   - For setting the position where the carburettor rotor is closed.

Throttle Stop Screw

Mixture Control Valve

Three adjustable controls are provided on this carburettor.

- The Needle Valve: For adjusting the mixture strength when the throttle is fully open.
- The Mixture Control Valve (Mixture control screw): For adjusting the mixture strength at part-throttle and idling speeds, to obtain steady idling and smooth acceleration to medium speeds.
- The Throttle Stop Screw: For setting the position where the carburettor rotor is closed.

PROVISIONAL SETTING

Open the needle-valve according to the engine instruction leaflet.

ADJUSTING THE CARBURETTOR

1. Set the throttle very slightly open from the idle position (See Fig. 1) and start the engine in the usual way. It is preferable to have the throttle only slightly open, to avoid unnecessarily high revolutions when the engine starts.

2. Now open the throttle fully and gradually close the Needle-Valve until the engine is running at its maximum speed.*

   *Warnings:
   - (a) Do not close the Needle-Valve to too "lean" a setting, as this will cause overheating which may result in internal damage and reduced engine life. Set the Needle Valve approximately 1/4 to 1/2 turn open (i.e. "rich") from the peak r.p.m. setting, even though this will slightly reduce r.p.m. on the ground.
   - (b) Make sure that the engine is fully "run-in" before operating it continuously at full power. (See engine instruction leaflet.)

3. Having set the Needle-Valve as described above, close the throttle. The engine should idle steadily and continuously. (If it stops immediately, first try turning the Throttle Stop Screw clockwise a few degrees to raise the idling speed a little.)

   (a) If, however, the engine idles unevenly and smokes a good deal when the throttle is re-opened, before picking up speed, it is probable that the idling mixture is too rich. In this case it will be necessary to turn the Mixture Control Valve clockwise 30 to 60 degrees.

   (b) Alternatively, if the Mixture Control Valve is set too lean, the engine may stop when the throttle is closed, or it may idle for a few moments, then speed up very slightly before coming to a stop. Re-opening the throttle under these conditions will usually result in the engine cutting out abruptly, without smoking. Corrective action is to turn the Mixture Control Valve about 30 to 60 degrees counter-clockwise.

Mixture Control Valve adjustment is not unduly critical, but do not turn it more than 30 — 60 degrees at a time. Carry out adjustments progressively and patiently, remembering the symptoms of rich and lean running. Quoted above, until the engine responds quickly and positively to the throttle.

Do not alter the Needle Valve setting while adjusting the Mixture Control Valve.

Warning: For safety reasons, it is advisable to stop the engine before carrying out adjustments to the Mixture Control Valve or Throttle Stop Screw.

Note: Once the correct carburettor settings have been established, it should be unnecessary to alter them. Such slight Needle-Valve readjustments as may be required to compensate for variations in atmospheric conditions will not normally affect the other two controls. Slight readjustments may be necessary for optimum performance if different types of fuel, glowplugs or propellers are used.

REALIGNMENT OF MIXTURE CONTROL VALVE

In the course of making carburettor adjustments, it is just possible that the Mixture Control Valve may be inadvertently screwed in or out too far and thereby moved beyond its effective adjustment range.

Its basic setting can be reestablished as follows:

The basic (factory) setting is as shown in the main sketch, i.e. with the shoulder portion "A" exactly at a tangent to the throttle rotor hole.
○アイドル調整バルブ（調整ねじ）の基準調整

スロットルの調整中、アイドル調整バルブを動かすと基準の位置から大きくずれてしまうことがあります。そのためは次の方法でもとにもしてください。

工場で調整されたキャブレターのアイドル調整バルブは、図のよう
にスロットルロックを全開にして上から見ると、アイドル調
整バルブの端のついた部分（A）が、ローターの穴の接線（B）と一致す
るようにセットしてあります。

まずスロットルを全開にして、
ローターの穴から取り出しながら
アイドル調整バルブを右へねじ
込んでいき、アイドル調整バル
ブの端のついた部分（A）がロー
ーターの穴の中出てくるように
します。

次にゆっくり左へまわし（A）
の部分がローターの接線（B）
と一致する位置までまわしてく
ださい。この位置が基準位置で
す。

○取扱上の注意と掃除

使用される燃料中にこみ等が含まれていますと、キャブレターの機能がそがわれます。燃料タンクとキャブレターの間に燃料フィルタ
ーの使用をお勧めします。燃料フィルターを使用した場合でも、多
少のごみはキャブレターへ送られますので、定期的に燃料フィルター
及びキャブレターの掃除をしてください。キャブレターへ送られた
ごみは、ほとんどの写真（3）に示される部分となりますので、ニードル
バルブ・ホルダーをはずして掃除してください。

To return the Mixture Control Valve to its original position, first
screw in the Mixture Control Valve, while looking into the rotor
hole. Then gradually unscrew the Mixture Control Valve until 'A'
precisely tangential to the rotor hole (i.e. so that 'A' and 'B' are
superimposed) as in the main sketch.

CARBURETTOR CLEANLINES

The correct functioning of the carburettor depends on its small fuel
orifices remaining clear. The minute particles of foreign matter that
are present in any fuel can easily partially obstruct these orifices and
upset mixture strength so that engine performance becomes erratic
and unreliable.

It is recommended that fuel is passed through a filter when the tank
is filled and that a good in-line filter is installed between the fuel
tank and carburettor and, furthermore, that this filter is frequently
cleaned to remove dirt and lint that accumulates on the filter screen.

Finally, occasionally remove the needle-valve holder from the
carburettor as shown in Photo (2) and extract any remaining foreign
matter that may have lodged in the location shown in Photo (3).

部品表 PARTS LIST

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The specifications are subject to alteration for improvement without notice.