SOLEX

CARBURETTOR

TYPES MOV & MOH

FITTING

AND

INSTRUCTION BOOKLET

SOLEX Ltd.,

DIRECTOR : GORDON RICHARDS

SOLEX WORKS

223/231 Marylebone Road,

LONDON N.W.1.

Telephones : PADDINGTON 8621 8622 8623 8624 8625 8626

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MOV and MOH Type SOLEX Carburettors

INSTRUCTIONS

FOR FITTING AND ADJUSTING

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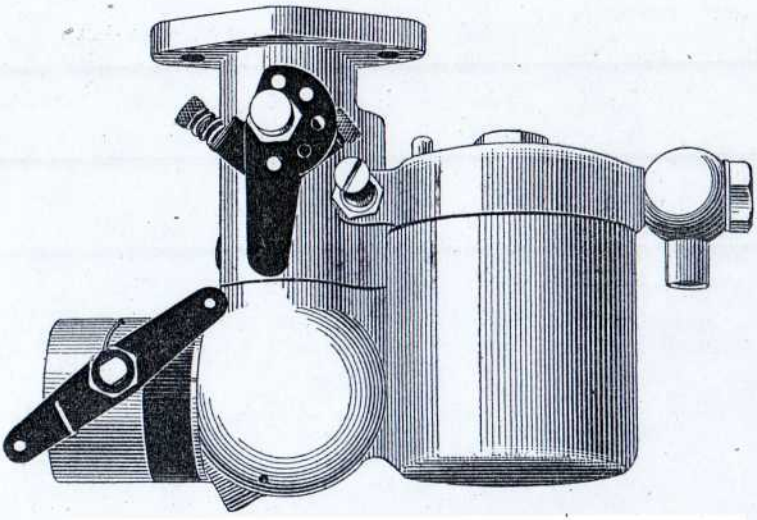

Fig. 1

MOV TYPE VERTICAL CARBURETTOR

WITH EASY STARTING DEVICE

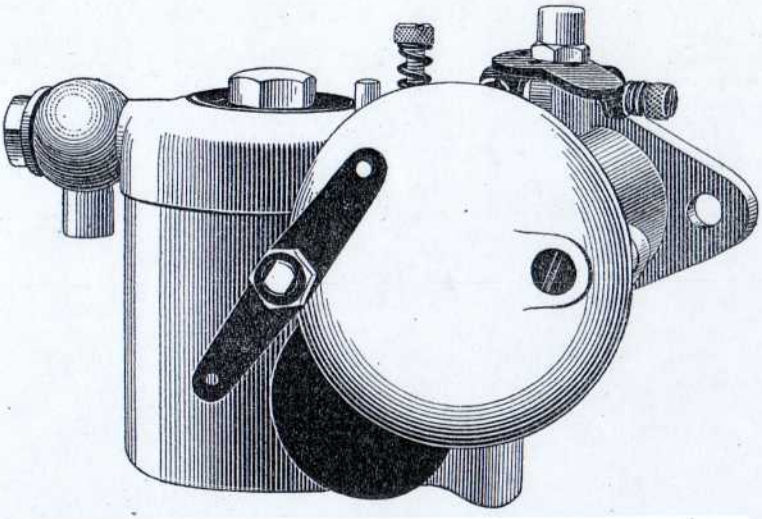

Fig. 2

MOH TYPE HORIZONTAL CARBURETTOR

WITH EASY STARTING DEVICE

DIRECTIONS

FOR FITTING AND ADJUSTING

the MOV and MOH

TYPE

SOLEX

I

FITTING

The MO type SOLEX has been specially designed for 6 cylinder engines having one carburettor. It is, however, equally suitable for high efficiency high speed 4 cylinder motors.

The MO type SOLEX is made in two types :

The MOV with a vertically disposed offtake.

The MOH with a horizontally disposed offtake.

The choice of the carburettor therefore becomes a question of whether a horizontal or a vertical is required and the most suitable size.

The vertical type MOV can always be adapted whatever may be the disposition of the port.

The MOH is only intended for monobloc engines having a single induction port and when fitting same it is

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With all orders please state the numbers that will be found on the float chamber.

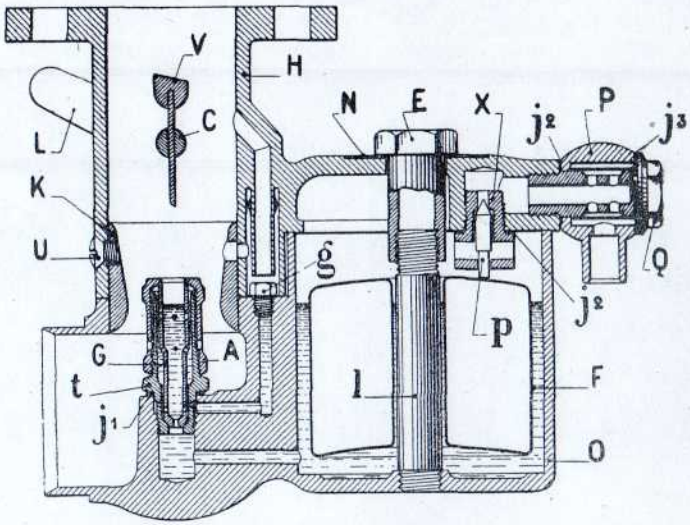


Fig. 3

SECTIONAL DIAGRAM OF VERTICAL CARBURETTOR

Type MOV

(Assembly 6)

G, Main jet. - **g**, Auxiliary jet. - **t**, Main jet carrier. - **F**, Float. **K**, Choke tube. - **A**, Main jet cap. - **j¹**, Main jet carrier washer. **j²**, Needle valve and filter washer. - **X**, Needle valve seating. **P**, Body of filter. - **Q**, Filter union assembling nut. - **p**, Needle. **L**, Throttle lever. - **C**, Throttle spindle. - **E**, Dismounting nut. **H**, Body of Carburettor. — **O**, Float chamber of Carburettor. **V**, Throttle. - **T**, Tickler. - **r**, Tickler spring. - **l**, Central pillar. **U**, Choke tube fixing screw. — **j³**, Washer for filter union. **N**, Name plate.

With all orders please state the type and number of the carburettor.
These particulars will be found on the float chamber immediately under the petrol union.

necessary to be sure that there is a sufficient head of petrol to supply the carburettor regardless of the inclination of the car.

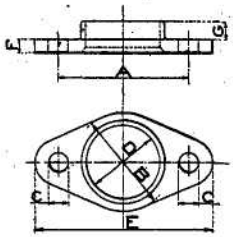
Choice of Carburettor. — In speaking of the diameter of the carburettor we intend to convey the diameter of the offtake at the flange and the various types below are described according to the above measurements in millimetres.

The carburettor should be equal or slightly larger in diameter than the induction port to which it bolts.

The choice of the carburettor having a direct bearing upon the adjustment, is dealt with at greater length in a special reference to this matter in part two of this booklet.

Position of the Carburettor. — The first question to decide is the best position in which to mount the carburettor.

COUNTERFLANGES OF CARBURETTORS.



Carburetor	A	B	C	D	E	F	G
26	48	38	8,5	29	64	7	7
30	53	44	8,5	33	73	7	8
35	65	50	10,5	38	89	7	9
40	72	60	10,5	43	93	8	8
46	78	62	10,5	49	102	9	10

This is generally determined by the existing pipe work which one can usually employ by the aid of a counterflange which we supply as a supplementary fitment if required. (See above table.)

The carburettor should be mounted in such a way that the pipe work is as simple as possible without any local enlargements in its diameter and without hairpin bends.

With all orders please state the numbers that will be found on the float chamber.

When the original pipe work is not provided with any form of heating by exhaust contact, it is usually possible in the case of vertical carburettors, to provide for heating by a hot air pipe and an exhaust muffle.

Where the horizontal types are concerned, there is no necessity for any other heating than that obtained by conduction from the cylinder walls.

One should always be careful to fit the carburettor where possible in such a position that the float can easily be withdrawn, for otherwise the advantages of accessibility offered by the Solex design are lost.

Excepting in the case of pressure fed fuel, when the position does not matter, the carburettor should always be sufficiently low to allow of 10 % drop from the bottom of the tank to the petrol union above the float chamber.

Generally speaking there should be sufficient room at the side of the carburettor to permit the hand to be placed underneath in order to remove the float chamber, and it is well to arrange the petrol pipe in such a way that this space is not obstructed thereby.

In the majority of cases it is advisable always to mount the carburettor with the float chamber in front.

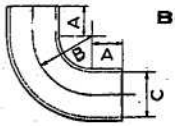
Induction Pipe. — The induction pipe of a 4 cylinder engine should be of uniform diameter equal or slightly less than that of the carburettor offtake.

The pipe must be as simple as possible and free from any sectional variations. Local enlargements tend to cause deposition of the fuel which is most undesirable and for the same reason it is well to avoid any local depressions below the mean lower surface level of the pipe work where any fuel is likely to collect.

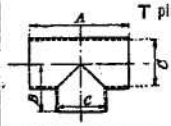
It is most important also that the flange shall be quite free from air leakage for a lack of tightness at these joints has a very considerable effect upon starting and even slow running.

With all orders please state the type and number of the carburettor.
These particulars will be found on the float chamber immediately under the petrol union.

PARTS FOR MANIFOLD ASSEMBLAGE



Bend



T piece

Tube

Diameter of Carburettor	Bend A	Bend B	Bend C	T piece A	T piece B	T piece C	Tube A	Tube B
22 & 26	20	35	29	60	30	29	29	26
30	20	40	33	70	36	33	33	30
35	20	40	38	80	40	38	38	35
40	22	45	43	86	43	43	43	40

All measurements in millimetres

In the case of 6 cylinder induction pipes difficult and more involved factors arise and it is preferable to consult us before assembling such.

Machined Pipe Lengths, T pieces and Bends. — In order to facilitate the assembly of induction pipes we make and stock special pipes and adaptors for fitting the Solex to a number of cars on which they are not already fitted as standard.

A list of these will be sent on request. We supply for other and unclassified motors a variety of pipe lengths, teepieces and bends from which it is generally possible to assemble an induction pipe to the fitting requirements of the cylinder block. See above table of these parts for each particular size of carburettor.

Throttle control. — The throttle control of the Solex is provided for by means of an abutment plate (fig. 4) which is fixed on the end of the spindle and is provided with a fixed limit opening screw which is non adjustable and with a spring loaded adjustable slow running screw. On the outer part of this plate there is fixed a small dowel pin which engages with a convenient hole in the throttle

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With all orders please state the numbers that will be found on the float chamber.

lever, thus permitting same to take up any position required by the control at intervals of 45°.

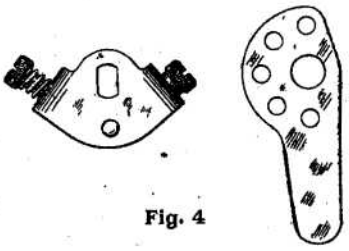

Fig. 4

The throttle lever is normally mounted on the left side of the carburettor looking in at the air intake in the case of the vertical models and at the upper part in the case of the horizontal models.

In certain cases it is necessary to have the control on the right side of the vertical carburettors and on the lower part of the horizontal carburettors. The procedure here is to remove the abutment plate from the spindle and reverse the position of the limit and slow running screws respectively, after which the former can be mounted on the opposite side of the spindle and its original position taken up by a distance washer which will be found on the right side with the normal assembly.

The lever is supplied blank and should be drilled at the necessary radius to suit the travel of the control rod which ought to be in the proportion indicated in (fig. 5.), « l » being equal to three quarters « c ». To facilitate the adaptation of the control we can supply, if required, a ball joint (fig. 5), which gives unrestricted movement and perfect freedom.

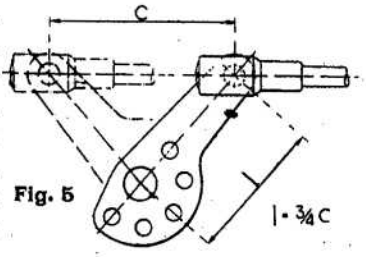

Fig. 5

When fitting the control system it is advisable if possible to restrict to the utmost the number of joints between the accelerator pedal and the throttle lever in order

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With all orders please state the type and number of the carburettor.
These particulars will be found on the float chamber immediately under the petrol union.

to avoid the play which will otherwise result from a multiplication of articulations.

In cases where the latter is necessary it is advisable to attach a light spring to the throttle lever itself to keep a constant thrust on one face of all the joints and avoid the uncertainty of low speed control which would otherwise result from slackness.

Petrol union and filter. — The petrol pipe should be soldered into the swivelling union in the ordinary way.

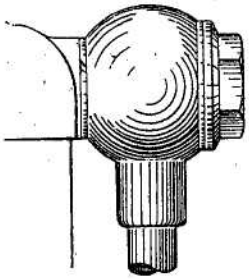

Fig. 6

Our carburettors are equipped with a filter which is placed in the bulbous centre of the swivelling portion, the latter being drilled to take a petrol pipe of 8 m/m external diameter which size we can supply on request.

The filter itself is placed at the upper part of the carburettor in a very accessible position so that it is easy to dismount and clean the gauze.

It will be observed that this filter is not of the decanter type for the float chamber of the carburettor is so designed that the main jet take off, instead of being at the bottom, is some little distance above same, so that any water or fine sludge that passes the filter can accumulate up to a fair quantity without getting through into the jet passages and can easily be removed by dismounting the float chamber, which is quickly accomplished.

In order to obtain a correct flow of petrol it is always advisable to give the pipe a mean downward inclination of 10 % between the bottom of the petrol tank and the top of the carburettor.

Easy starting device. — Certain engines when cold present considerable difficulty in starting especially with heavy petrol or with benzole. During the winter months especially a considerable effort is sometimes necessary and a temporary over enrichment of mixture.

With all orders please state the numbers that will be found on the float chamber.

In addition to this the common use of electrical self-starters necessitates some provision being made for ease of starting in order to save the batteries and to cater for this necessity and assure immediate starting in all circumstances we have arranged for a special strangling device to operate on the air entrance actuated by means of a lever which will close off the air at will.

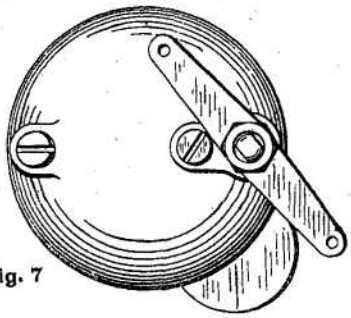

Fig. 7

This is maintained in the fully open position during ordinary running by menas of a spring, and for starting purposes it is temporarily closed by operation from the dashboard. To facilitate the installation of this control the strangler lever is drilled at both ends.

In the case of the MOH type it takes the form of a modified bell in which a special shutter is mounted (fig. 7).

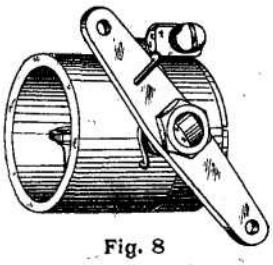

Fig. 8

For the MOV the strangler is made in two models; the short variety (fig. 8), in which no provision is made for hot air attachments

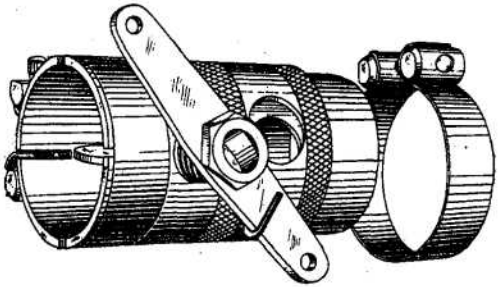

Fig. 9

and the long type (fig. 9) which includes a cold air register and a further installation for the adaptation of a hot air pipe.

These two types are fixed at the air entrance of the

With all orders please state the type and number of the carburettor.
These particulars will be found on the float chamber immediately under the petrol union.

carburettor by means of a clip joint. It will be noted that both of these varieties of MOV strangler can also be mounted on the MOH carburettor in cases where extra heating is necessary.

In order to obtain easy starting the following procedure is recommended : Close the shutter, open slightly the throttle, switch off and turn the engine a few times by means of the self-starter. Switch on, again operate the starter and on gradually releasing the strangler the engine should start.

Strangler control. — To facilitate this we provide a special dashboard knob complete with steel cable and anchorage which can be mounted on the instrument board and attached directly to the strangler lever (fig. 10).

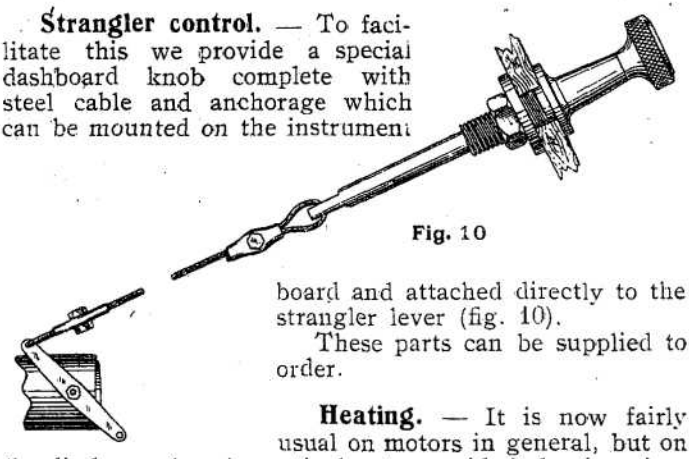

Fig. 10

These parts can be supplied to order.

Heating. — It is now fairly usual on motors in general, but on 6 cylinder engines in particular, to provide induction pipes which are heated by hot spot contact with the exhaust.

When the engine is not so designed or in cases where the climate is particularly cold or where a very rapid development of power is required as in public services, etc., it may be desirable to provide extra heat in the form of a hot air pipe.

This can be done by providing a special muffle to encircle the exhaust pipe and joining up same by means of a flexible tubing with the air entrance of the carburettor (fig. 11). It is not desirable to solder the flexible tubing on to the air intake but preferable to attach it by means of a clip joint to the outside of the air intake either on the register or on the carburettor itself.

It is well also to impress the necessity of providing absolute freedom at the muffle by ensuring that this is large enough and that the position of the flexible offtake pipe is such that the utmost freedom is permitted to the

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With all orders please state the numbers that will be found on the float chamber.

hot air current. otherwise there will be a serious loss of power and increase in consumption.

The MOH, type carburettor does not as a rule require any additional heating for it generally obtains sufficient heat by means of conduction from the cylinder walls.

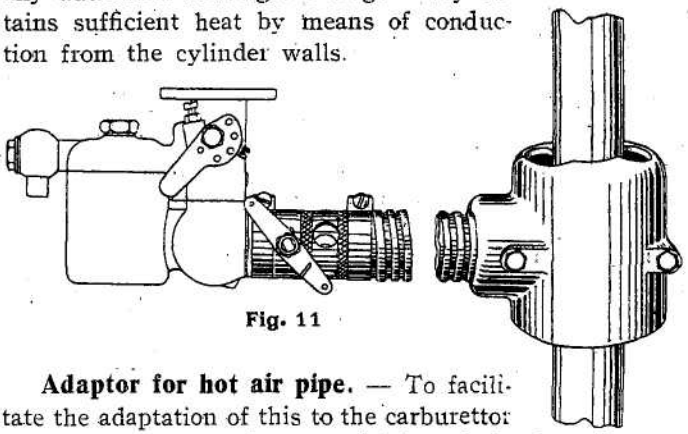


Fig. 11

Adaptor for hot air pipe. — To facilitate the adaptation of this to the carburettor we can supply to order a special hot air bend as illustrated in fig. 12 which can be fitted either directly on the caburettor or on the off side of the strangler and which, swinging in all directions in a definite plane, will facilitate greatly the adaptation of the flexible tubing.

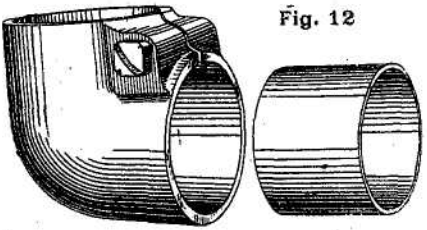


Fig. 12

Governor Throttle. — In order to provide for those cases in which the engine is governed, we can supply if required a special counterflange embodying a throttle which is operated directly by the governor (fig. 13).

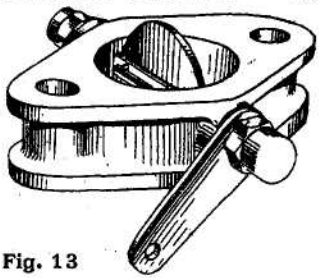


Fig. 13

With all orders please state the type and number of the carburettor.
These particulars will be found on the float chamber immediately under the petrol union.

II

ADJUSTMENT OF CARBURETTOR

The adjustment of the SOLEX Carburettor consists in:

1. The determination of a suitable auxiliary jet **g** to give the best slow running, and

2. The best size of main jet **G** to give the necessary speed, hill climbing, power and pick up.

The adjustment operations are very simple and the work is reduced to a minimum by the facility with which the float chamber can be dismounted and access obtained to all parts.

As regards the choke tube **K**, the diameter of this part can generally be determined by the table of adjustments on page 23.

DISMOUNTING

When it is required to dismount the carburettor for adjustment or cleaning it is only necessary to unscrew the large nut **E** fig. 3) with one hand (leaving the nut in position) and with the other the float chamber complete with both its jets can be removed without using any spe cial key, breaking any joints or spilling any petrol.

When re-mounting be careful that the float chamber comes squarely into position **and that the screw E is moderately tightened.**

SLOW RUNNING ADJUSTMENT

Fig. 14
Auxiliary Jet "g"

During slow running the throttle is in the position indicated in (fig. 16.) and the petrol is supplied by the special auxiliary jet **g** (fig. 14).

The number stamped thereon is indicative of its size in hundredths of millimetres and the jet should in no circumstances be reamered for its output is originally determined by means of fluid flow.

With all orders please state the numbers that will be found on the float chamber.

The slow running adjustment is carried out entirely regardlessly of the main setting and resolves itself into two operations :

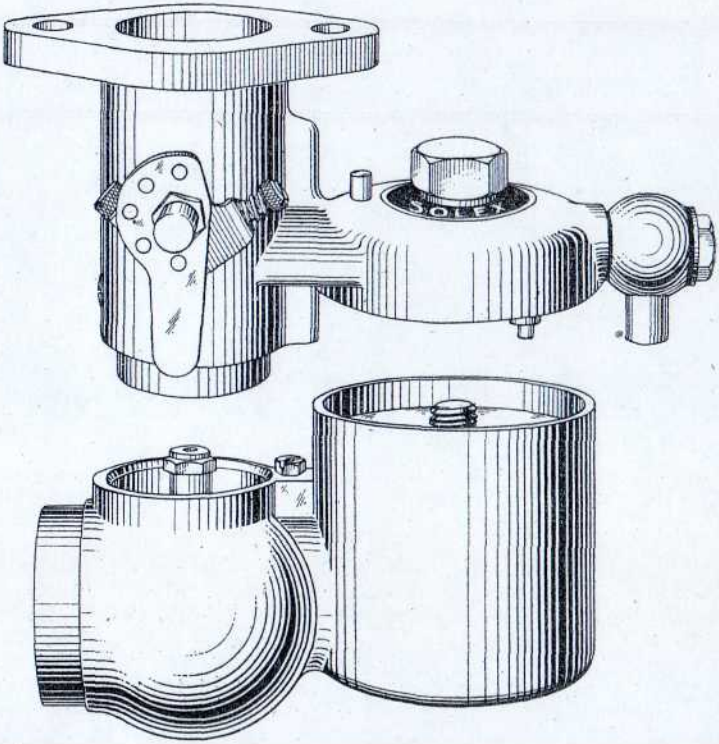


Fig. 15. — Vertical Carburettor dismounted

1. Mixture adjustment. — Try, to commence with, one of the jets indicated in the adjustment table selecting same as per the size of the engine.

Too rich a mixture is recognized :

1. By a rhythmic hunt or surge which the engine develops when warm.

2. When the motor stops after having been idling some time in this way and the throttle is opened, a certain amount of petrol drops from the carburettor.

With all orders please state the type and number of the carburettor.
These particulars will be found on the float chamber immediately under the petrol union.

3. The plug points will generally be found covered with a coating of soot.

In such a case select a jet one size smaller.

Insufficient petrol is, on the contrary, recognized by an irregular misfire when idling and by difficulty in starting.

In such a case one uses a **larger** auxiliary jet.

In the case of the MO carburettor it is generally desirable to have the auxiliary as big as possible consistent with the avoidance of hunting when idling.

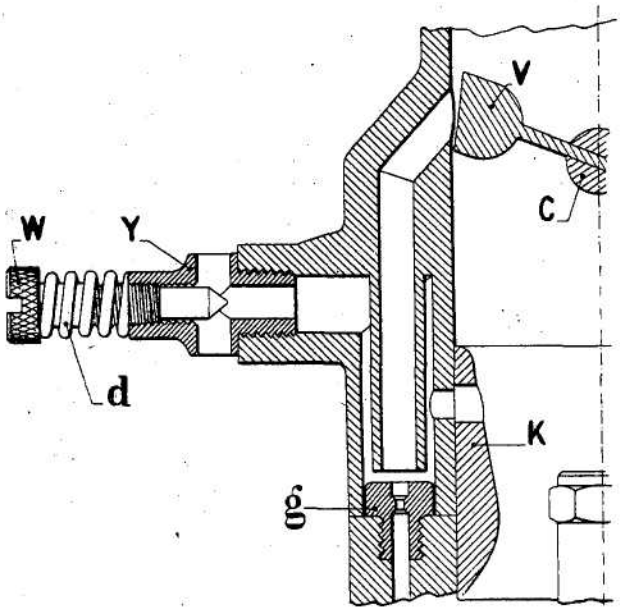


Fig. 16. — Sectional View of the MOV type in the slow running position showing the arrangement of the extra air screw.

2. Adjustment of the idling speed. — Having determined the adjustment from a mixture strength point of view, the next requirement is the adjustment of the idling speed. To do this the slow running screw on the abutment plate is reduced until the required minimum obtained.

With all orders please state the numbers that will be found on the float chamber.

The 30 m/m size and upwards are provided in addition with **an air regulating screw W** (fig. 11) for refinement of the auxiliary mixture. On rotating this screw outwards a slight air leakage is produced which reduces the strength of same and vice versa. By careful regulation therefore extreme correctness of mixture strength can be obtained easily.

It is best to commence by having it screwed fully home which will give the greatest richness and then gradually unscrewing it until the best performance is obtained. At the same time the slow running screw on the abutment plate can be reduced and by means of a suitable co-operation of these two members a perfect tick-over will be obtained, the air regulating screw W being automatically locked in position by the spring d.

It is well to make this adjustment when the engine is only moderately warm, for otherwise when cold the mixture will be found too weak and starting very difficult.

With all orders please state the type and number of the carburettor.
These particulars will be found on the float chamber immediately under the petrol union.

DETAILS OF THE MO TYPE JET ASSEMBLIES

Main Jet, Jet Carrier and Jet Cap.

These parts in the MO type are made in two distinct models constituting two assemblies described as « assembly 4 " and " assembly 6 ".

Fig. 17

" **Assembly 4** ". The parts employed in this assembly give a relatively reduced petrol reservoir for pick up purposes and are used in the case of small capacity engines or motors which are equipped with a horizontal carburettor.

The horizontal type instruments described as the MOH of all sizes are supplied with " assembly 4 ".

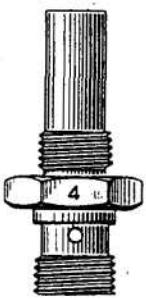


Fig. 18

The jets of this assembly are designed and marked with two figures, one indicating the diameter of the calibrated orifice in hundredths of millimetres and below that a smaller figure of two digits 41, 42 or 43 which indicates the disposition of the lateral holes (fig. 17).

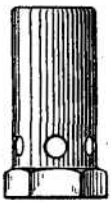


Fig. 19

The jet carrier of " assembly 4 " is described as jet carrier 4 and marked with the numeral 4 (fig. 18).

The jet cap for " assembly 4 " for horizontal carburettors is described as jet cap 4 and is marked with the numeral 4 (fig. 19).

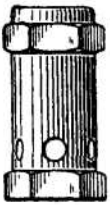


Fig. 20

With all orders please state the numbers that will be found on the float chamber.

The jet cap for " assembly 4 " when used in the case of vertical carburettors is described as jet cap N° 5 and marked with the numeral 5 (fig. 20).

" **Assembly 6** ". This is only employed in the vertical carburettors MOV.

Fig. 21

The parts employed in " assembly 6 " give a considerably greater reservoir capacity for acceleration purposes and are used in the case of engines of large capacity and efficiency. It is frequently advisable however first to test out " assembly 4 " in these cases in order to avoid fuel waste which may otherwise result from the use of an unnecessarily large reservoir. If the pickup is sufficient with " assembly 4 " it is advisable to use it instead of " assembly 6 "

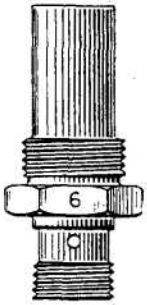
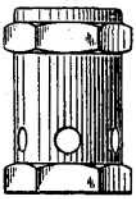


Fig. 22

The jets for " assembly 6 " are designed and marked with a figure indicating the diameter of their calibrated orifice expressed in hundredths of millimetres and below that with an additional number of two digits, 61, 62, 63 or 64 indicating the disposition of the lateral holes (fig. 21).



The jet carrier of " assembly 6 " is described as jet carrier 6 and marked with the numeral 6 (fig. 22).

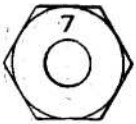


Fig. 23

The jet cap of " assembly 6 " always used in the case of vertical carburettors is described as jet cap 7 and marked with the numeral 7 (fig. 23).

With all orders please state the type and number of the carburettor.
These particulars will be found on the float chamber immediately under the petrol union.

ADJUSTMENT FOR POWER

It is necessary first to determine the size of the choke tube **K** and this can be obtained from the adjustment table on page 23, the diameter of the choke tube being stamped on the inside of the waist, the figures representing same being in millimetres.

In order to dismount the choke tube it is only neces sary to remove its retaining screw. In the case of horizontal carburettors, in addition to the above screw the choke is also maintained in position by the main jet cap which passes through it, and the float chamber must therefore be removed before the choke tube can be with-drawn.

The size of the choke tube having been decided upon, the adjustment now becomes a question of determining the best size of main jet **G** to use.

To determine this consult the table on page 20 which gives the average sizes of main jet required with definite choke tubes.

In some cases it is necessary owing to individual peculiarities of the engine, to vary the main jet up and down by one or two sizes.

To remove the main jet **G** unscrew the cap **A** when the jet can be withdrawn by the fingers.

This can be effected without losing any petrol and without having to break a petrol joint.

When re-mounting, do not use undue force when screwing down the jet cap, and thus avoid injury to the jet.

Do not in any circumstances use a reamer on the calibrated hole which is corrected by fluid flow and must not be interfered with.

Generally speaking it is advisable to use as small a jet as possible consistent with obtaining the required power.

This jet is generally one size larger than the number which gives obvious indications of poverty.

One can recognize a poor mixture by the tendency to fire in the carburettor when accelerating.

When two jets give the same performance in point of power and pick up it is of course advisable to choose the smaller in order to save petrol.

With all orders please state the numbers that will be found on the float chamber.

DETERMINATION OF THE SIZE OF THE CARBURETTOR

1. *Carburettor horizontal or vertical.*

As a rule the former type is always employed in the case of monobloc engines with a single port.

It is necessary, however, to note that the position of the petrol tank is sufficiently high to give the required head of petrol even on the steepest hills.

The vertical type is almost invariably employed in the case of external manifolds.

2. *Choice of size.*

Generally speaking one selects a carburettor the diameter of which corresponds with the internal measurement of the induction pipe or port, but it is also well to consult the tables on page 23 which take into account the general characteristics and size of the engine.

With all orders please state the type and number of the carburettor.
These particulars will be found on the float chamber immediately under the petrol union.

TABLE OF ADJUSTMENTS FOR MO TYPE SOLEX

Cylinder Capacity in litres X Maximum Speed	MOH Type Carburettor Assembly 4			MOV Type Carburettor Assembly 4.			MOV Type Carburettor Assembly 6		
	Avge Choke	Avge G×41	Carb. advised	Avge Choke	Avge G×41	Carb. advised	Avge Choke	Avge G×61	Carb. advised
2150	14	65		18	65		21	70	
2450	15	70							
2600	16	75	26	19	80	30	22	80	30
3100	17	80		20	85		23	90	
3450	18	85							
3750	19	90		21	95		24	105	
4300	20	100	30	22	100		25	115	
4650	21	105							35
4950	22	110		23	110	35	26	120	
5650	23	115		24	115		27	130	
6100	24	120	35	25	120				
6500	25	125		26	125		28	135	
7250	26	130		27	130		29	140	
8000	27	135		28	135		30	145	40
8600	28	140		29	140	40	31	150	
9100	29	145	40						
9700	30	155		30	155		32	155	
10500	31	160		31	160		33	160	
11300	32	170		32	170		34	170	
12100	33	175		33	175		35	175	
13000	34	180		34	180		36	180	
13900	35	190		35	190		37	190	
14500	36	195		36	195				
15200	37	200	46	37	200	46	38	200	46
16200	38	205		38	205		39	210	
17000	39	215					40	215	
17800	40	220		39	220				
18700	41	225		40	225		41	230	
19700	42	230		41	230		42	240	
20800	43	240		42	240		43	250	

In order to make use of this table it is necessary to determine the constants in the first column and this is done by multiplying the engine capacity **in litres by the peak r. p. m.**

With all orders please state the numbers that will be found on the float chamber.

The cylinder capacity is generally to be found in the Instruction Booklet accompanying the car, but in cases where this figure is unknown it is easy to arrive at it by the following formula :

$$V = \frac{\pi \times A^2 \times C \times n}{40.000}$$

in which ;

V is the capacity in litres.
π = 3,1416.
A = Bore of one cylinder in millimetres.
C = Stroke of one cylinder in millimetres.
n = Number of cylinders.

This constant having been determined in the above formula, it is only necessary to consult the corresponding numbers on a horizontal line of the table to find the size of the carburettor and the average combination.

AUXILIARY JET g

Carburettor	Auxiliary Jet
26	40 - 45 - 50
30 or 35	50 - 55 - 60
40 or 46	55 - 60 - 65

In the first column you will find the average choke tube **K**.

In the second column the average main jet **G.**

In the third column the size of carburettor recommended.

These three details will exist in three groups according to the type of carburettor chosen.

The small table placed above indicates the average auxiliary jet size for each carburettor.

Example 1. — Supposing one is called upon to determine the carburettor size and adjustment for a motor of 4 or 6 cylinders and a capacity of 1 1/2 litres, the peak speed being 3,500 r. p. m. and the carburettor an MOH or horizontal type.

The number V × N = 1.5 litres × 3.500 = 5.250.

The number 5.250 is midway between the numbers on the table 4.950 and 5.650 but it approaches more nearly to the former.

With all orders please state the type and number of the carburettor.
These particulars will be found on the float chamber immediately under the petrol union.

On following up along the horizontal line in the columns devoted to the MOH type N° 4 assembly :

In the first column one will see that the correct choke tube to use is the **K** 22.

In the second column main jet **G** should be 110.

In the third column that a 30 MOH carburettor should be used.

Lastly, in the small table it will be noted that the auxiliary jet will be 50, 55 or 60.

In such a case the order would read.

1-30 MOH carburettor (D or G according to whether the float chamber is required on the right or the left) N° 4 assembly

K = 22 **G** = 110 **g** = 55

and with them up down numbers of each member in order to get the best results.

Example 2. — Suppose it is desired to determine the adjustment for a 6 cylinder 3 litre engine having a 3.200 r. p. m. peak with a vertical Solex. The capacity being relatively large N° 6 assembly should be used in this case

The number V × N = 3 litres × 3200 = 9.600.

The carburettor to suit this motor will be the MOV type with N° 6 jet assembly.

The constant on the table 9.700 is the nearest approach to the above 9.600 formula.

On following along the vertical line into the third column the MOV type with the N° 6 assembly is indicated.

In the first column the average choke tube should be **K** = 32.

In the second column the average main jet to use should be **G** = 155.

In the third column the type of carburettor to employ would be a 40 MOV.

Finally, from the small table we find that an auxiliary jet of 55, 60 or 65 will be required.

Therefore in this case a

40 MOV carburettor Assembly 6 should be ordered set

K = 32 **G** = 155 **g** = 60

with up and down spares to get the best results.

With all orders please state the numbers that will be found on the float chamber.

IV

DIAGNOSIS OF FAULTS

There is never a question of definite failure of the SOLEX carburettor. It is simply a matter of locating errors in the selection of jets and choke tube.

It is advisable always to carry out adjustments with a definite method and never to do more than one thing at a time for by such a way it is impossible to determine which detail of adjustment was at fault.

FLOODING

Insufficiently tightened joints. — In the Solex carburettor there are four joints :

The jet carrier washer.
The needle valve washer.
The two washers of the petrol union.

The latter being exterior, they will readily disclose any leakage, but a leakage due to the needle valve being screwed insufficiently tightly into its seating in the upper part of the carburettor, will cause the level to be raised and resolve itself into a drip at the main jet.

The first thing to do when any evidence of this is observed therefore, is to verify the tightness of all these four joints.

Grit on the needle seating. — This trouble is very often in evidence in the case of carburettors not provided with a filter, especially shortly after being fitted, for in new petrol pipes which have been annealed and bent, flecks of oxide are often set free which can readily lodge in the seating of the needle and cause flooding.

Punctured float. — In this case the petrol which leaks into the float increases its weight and a higher level results causing flooding at the main jet. In such a case the best cure is either to have a new float or if the leakage is a small one, it can be stopped with solder. Before doing so, however, the float should be put in boiling water which will serve the double purpose of locating the leakage by bubbles and boiling off its petrol contents.

Level too high. — The simplicity of the constant level arrangements of the Solex render this case extremely rare. It can occur, however, where light spirit is used

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With all orders please state the type and number of the carburettor.
These particulars will be found on the float chamber immediately under the petrol union.

in a carburettor fitted with a float suitable for heavier fuel or if the needle valve has become worn. In this case either a new and lighter float must be obtained or a needle valve of normal length. The weights of the standard floats for 730 spirit are as follows :

33 grammes for 26 m/m carburettors.
42 grammes for 30 m/m carburettors.
64 grammes for 35, 40 and 46 m/m carburettors.

We can provide special benzole floats of which the weights are as follows :

47 grammes for 30 m/m carburettors.
70 grammes for 35, 40 and 46 m/m carburettors.

Checking the level. — This is a very simple process in the Solex. One has merely to dismount the float chamber, unscrew the main jet cap, take out the main jet and mount the float chamber again in position with the main jet carrier sticking out at the side. Turn on the petrol, when the height to which it rises can be observed. In the case of ordinary spirit it should be approximately 3 m/m from the top. There is no functional disadvantage in having the petrol higher than this, but the above limit is mentioned in order to avoid flooding when the car is left standing on a sharp incline.

Excess of petrol pressure. — For exhaust operated auxiliary petrol tanks or for ordinary gravity feed, 26 m/m carburettors are supplied with a needle valve of which the seating is 2 m/m, while the 30, 35 and 40 m/m carburettors take a needle valve of which the seating is 2.5 m/m.

When the head of petrol is abnormal (6 or 8 feet) or when the petrol tank is pressure fed, the buoyancy of the float may be insufficient to keep the needle on its seating against this weight of fuel. This is remedied in the case of 30, 35 and 40 m/m carburettors by replacing the standard 2.5 m/m needle valve with the smaller one having a 2 m/m seating. The latter can be supplied to order.

DIFFICULT STARTING

Shortage of petrol. — One should first test for the arrival of petrol in the float chamber by depressing the tickler.

By this means it will be easy to determine whether the float is on the bottom of the carburettor or not. Should the former be the case, verify first that the petrol tap is turned on and that there is petrol in the tank.

With all orders please state the numbers that, will be found on the float chamber.

Finally, by unscrewing the tank union nut determine whether the pipe work is quite free.

It often happens that when new or when the petrol has been allowed to run entirely out of the tank an air lock occurs. In such a case the pipe must be primed by any convenient means. If it is possible to blow into the main filling aperture of the tank this will generally suffice to remove the air lock.

A vapour lock approximating the above in its effects can also be produced if the petrol pipe passes too close to a hot exhaust pipe.

Level too low. — If the specific gravity of the petrol is too high, the level can be so low that starting becomes difficult.

In that case it is advisable to change the float for a heavier one or employ a lighter spirit.

Defective slow running. — Check first the adjustment as described on pages 13 to 16, but if by this means it is not possible to locate the trouble, it is probably owing to air leakage at some point in the induction system, possibly via the inlet valve stems in their guides. In this case use an auxiliary jet one or two numbers larger than normal, being careful not to exceed the size required, for in such a case hunting will occur. When equal results are obtained with the two jets it is generally desirable to use the larger.

Before altering jets it is always wise to see that a partial obstruction is not the original cause.

Strangler not closing properly. — It is well to assure oneself that when in the starting position the strangler shutter closes completely. If it does not do so, check over the control generally and adjust same so that when operated from the dashboard the shutter entirely obturates the entrance to the choke tube.

Throttle open too wide or not wide enough. — The very strong suction on the auxiliary jet which is necessary for starting cannot be obtained unless the throttle is almost closed.

It should be in fact only slightly wider than the normal position for idling.

If, however, the carburettor is flooded when the throttle is so placed, the probable results will be two or three fires, then the engine will stop, but the cure for this is to open the throttle a little wider.

With all orders please state the type and number of the carburettor.
These particulars will be found on the float chamber immediately under the petrol union.

In order to get easy starting during very cold weather, or when the engine has not been used for some little time, the best plan is to open the throttle gradually and at the same time close the strangler as indicated on page 13.

Air leakage. — Difficulty in starting is always the result of air leakage at any point between the carburettor and the cylinders. It may be at the flange joint or possibly owing to undue play between the inlet valve stems and their guides. The result is that the depression on the auxiliary jet is insufficient to draw the requisite amount of petrol to cope with the extra air inspired.

To start more easily in such a case the throttle must be opened a little wider and the carburettor flooded.

It is generally easy to cure a leakage which results from defective joints, but if this is not sufficient one must then obtain valves with better fitting stems. Meanwhile, however, the trouble can be coped with up to a point by the use of a larger auxiliary jet.

Defective or insufficiently advanced ignition. — It is well to assure oneself before interfering with the carburettor, that the ignition is in order and not to forget that in the case of magnetos one is obliged to advance the spark to a fair degree in order to get a sufficiently intense starting spark.

Attention is also necessary to the distributor, high tension leads and sparking plugs.

The points of the latter ought to be separated by .6 m/m or .025".

DEFECTIVE SLOW RUNNING

If, in spite of the use of different auxiliary jets one is unable to obtain good slow running, a considerable air leakage is generally the cause. (See instructions above re difficult starting). In this case the engine will not fire regularly and stalls if one attempts to throttle it down to a slow idle. Also, if the carburettor is temporarily flooded by depression of the tickler without touching the throttle, the engine temporarily speeds up. In this case it is impossible to obtain a good idle, for the amount of air entering by illegitimate paths in greater than the maximum that must pass by the edge of the throttle in order to obtain good slow running.

Another cause of defective idling is bad condition of the high tension distributor or leads and too small a space between the points and the sparking plugs. This should be as mentioned above, about .6 m/m.

With all orders please state the numbers that will be found on the float chamber.

BAD ACCELERATION

During cold weather one must expect a little sluggishness in getting away immediately after starting. This inconvenience, however, should disappear if the engine is allowed to idle for a few moments to get the chill off. Also the pick up from cold can be assisted for a few moments by partially closing the strangler but it should be released again at the earliest possible moment to avoid the inspiration of liquid petrol into the cylinders which can readily occur with over strangulation in such circumstances.

Bad adjustment. — Refer to pages 23, 24 and 25 see that the adjustment is fairly average for the engine in question and that the jets are not choked or on the other hand have not been reamered by unauthorized persons. Should an examination show that these points are not in order it is well first to try the correct setting.

If the performance is bad in these circumstances, abnormal engine conditions are indicated and slightly larger jets should be used without touching the choke tube.

Defective ignition. — In the case of battery ignition first of all be certain that the batteries are not discharged, but where magnetos are concerned it is always well to remember that a considerable advancement is required before a spark of correct intensity is obtained at low speeds.

For the same reason the points of the plugs should be carefully spaced, for a feeble current will fail to bridge a gap that is too wide especially when electrical resistance is imposed by the compression resulting from a sudden throttle opening.

Complete absence of pick-up. — This can only occur when the main jet is entirely choked, provided of course always that when the accelerator is released back to the auxiliary position, the engine fires quickly.

INSUFFICIENT SPEED ON THE LEVEL

Bad adjustment. — Verify first the combination as per the above tables.

Butterfly not opening fully. — Note that when the accelerator is fully depressed the throttle is completely open so that the point of the limit screw is in contact with the boss cast on the side of the carburettor body.

With all orders please state the type and number of the carburettor.
These particulars will be found on the float chamber immediately under the petrol union.

Insufficient ignition advance. — Check this as per the makers' instruction booklet. If the magneto is slightly weak, it is well to advance it 10° or 15° beyond the ordinary point advised, which advice has of course reference to a spark of a full firing intensity.

Partial petrol choke. — This can generally be recognized by the ability to accelerate up to a certain speed which is maintained by the engine, but in an uncertain manner, occasionally pulling with intermittent periods of evident weakness. The best confirmatory test for this is to make a short run with a small test tank, thus cutting out the main tank and supply pipe.

Silencer choked. — This is apt to occur with certain designs of silencer incorporating a number of small holes which can, after a prolonged period, become partially choked with soot. If suspected as a cause it can be verified by making a short run with the exhaust pipe disconnected from the silencer, preferably on a hill, the normal effect on which is known.

OVERHEATING

The carburettor is rarely to blame in cases of overheating which is almost invariably due to defective circulation either of water or of air.

Undue richness of mixture can slightly raise the temperature as will also undue poverty and retarded ignition. but the margin of cooling capacity should always be more than equal to cope with any of the above and troubles therefore of this kind should be sought for under the first mentioned cause.

KNOCKING

A tendency to knock is likewise due almost invariably to causes other than carburation, such as undue ignition advancement with which is included self advancing magnetos which tend to knock on acceleration and carbonization. To these may be added excessive tappet clearances and piston slap which are in the nature of mechanical noises frequently mistaken for knocking which is detonative in quality.

When the latter is due to carburation this is always caused by poverty of mixture.

EXCESSIVE CONSUMPTION

First note that there is no loss of petrol either in the form of flooding or leakage at any of the external joints.

With all orders please state the numbers that will be found on the float chamber.

It is then well to verify that the estimation of the mileage per gallon has been correctly carried out.

The test, for instance, should take place over a course of an absolutely definite length as determined by milestones or a speedometer that has been carefully checked against same beforehand.

We suggest the following method of carrying out a consumption trial :

Fill completely the tank while the car is on a perfectly level surface.

Carry out a run over the prescribed course.

Return to the original position exactly and measure the precise quantity of petrol necessary to refill the tank to the original height.

It is well to make the test a fairly long one about 50 miles would suffice.

If extreme precision is required, a special test tank of very exact capacity can be employed in preference, but one should never use the hap-hazard method of estimating the mileage per gallon by means of reputed measurements from cans or pumps and mileages indicated by speedometers that may be far from accurate.

Jet Cap loose. — If the heating is correct and the jets are as small as possible to give the required power, excessive consumption cannot in the ordinary way be caused by the carburettor unless the main jet has not been screwed down properly on its seating. In the latter event, tighten down the cap and try again.

Defective strangler fitting. — Examine carefully the strangler, noting that when out of operation it opens fully.

Retarded ignition. — This is frequently a cause of bad consumption. If the ignition is not fixed, it is always advisable to keep it as far advanced as possible consistent with the avoidance of knocking.

Note also that there is no suggestion of misfiring, for this constitutes a very great cause of fuel waste.

Bad condition of the engine. — The condition of the motor has of course a very considerable effect on the mileage per gallon.

It is easy to understand that if the rings or valves are defective and the compression poor, one not only suffers by the wastage of live charge during compression, but also

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With all orders please state the type and number of the carburettor.
These particulars will be found on the float chamber immediately under the petrol union.

by loss of the explosion effort during the firing stroke. A combination of these two, especially in an engine which is in other respects not in good condition, could easily double the normal fuel consumption, in addition to which there would be considerable power loss.

After having had such troubles remedied, one must remember that the " characteristic " of the engine will be considerably altered and the carburettor therefore must in such cases be readjusted.

TROUBLES DUE TO SUCTION OPERATED AUXILIARY TANKS

A great many motors are now provided with devices of this description that can frequently cause troubles for which carburation is blamed.

1. Any leakage of air into the suction pipe can cause difficult starting and bad slow running.

2. It occasionally happens that owing to a defective valve in the suction system neat petrol can be drawn into the manifold and when this occurs the consumption can easily be excessive without any apparent carburation cause.

3. When driving fast up a long hill which requires full throttle, starvation can be caused through there being insufficient depression at the full throttle position to draw fuel from the main tank into the auxiliary reservoir.

In order to confirm this as a possible cause, remove the suction pipe temporarily, block up the induction pipe nipple and treat the apparatus as a test tank.

If the troubles are not reproduced while petrol remains therein, the carburettor has obviously had no part in the original cause.

In such a case it is well to apply to the makers of the apparatus.

TROUBLES CAUSED BY AIR FILTERS

An air filter with too small a section of filtering medium will frequently raise the consumption owing to the increased vacuum imposed upon the jet thereby. If this is suspected, make a comparative test with the air filter removed. Should the cause be located here, first clean carefully the filtering medium and try again, but if the consumption is still bad it is probably the result of the filter itself being too small.

With all orders please state the numbers that will be found on the float chamber.

"SOLEX" CARBURETTORS "MO" TYPE

PRICES OF CARBURETTORS & SPARE PARTS

	SIZE OF CARBURETTORS			
	30	35	40	46
Carburettor complete Horizontal or Vertical with filter	£6. 0.0	£7. 0.0	£8. 0.0	£9. 0.0
Spare Parts for Vertical SOLEX "MO" Type. Butterfly	6.0	6.0	7.0	8.0
Butterfly Spindle	6.0	6.6	7.0	7.6
Screws for Butterfly, per pair	6	6	6	6
Butterfly complete with Spindle and Screws	12.6	13.0	14.6	16.0
Parts fixed on Butterfly Spindle (Standard on all "MO" type)	8.0	8.0	8.0	8.0
Butterfly with Spindle complete with all parts	21.0	21.6	22.6	24.6
Throttle Chamber with float chamber top	£2.17.6	£3. 6.0	£3.16.0	£4.16.0
Body of Carburettor complete	£3.18.6	£4. 7.6	£4.19.0	£6. 0.6
Float Chamber with central stem, less Jet Stand	£1.16.0	£2. 2.0	£2. 6.0	£3. 2.0
Spare parts for Horizontal SOLEX "MO" Type. Butterfly	6.0	6.0	7.0	8.0
Butterfly Spindle	6.0	6.6	7.0	7.6
Screws for Butterfly, per pair	6	6	6	6
Butterfly complete with Spindle and Screws	12.6	13.0	14.6	16.0
Parts fixed on Butterfly Spindle (Standard on all "MO" type	8.6	8.6	8.6	8.6
Butterfly with Spindle complete with all parts	£1. 1.0	£1. 1.6	£1. 3.0	£1. 4.6
Throttle Chamber with float chamber top	£2.18.6	£3. 7.6	£3.17.0	£4.16.0
Body of Carburettor complete	£3.19.6	£4. 9.0	£5. 0.0	£6. 0.6
Float Chamber with central stem less Jet Stand	£1.10.0	£1.14.0	£1.16.0	£2.10.0
Air Bell without Strangler	13.6	17.6	£1. 0.0	£1.15.0
Choke Tube "K"	5.6	7.6	9.0	10.6
Float "F"	5.0	6.0	6.0	8.6
Air Strangler complete (Horizontal or Vertical)	19.6	£1. 0.0	£1.17.6	£2. 5.0
Fixing Collar for Body of Air Strangler complete with screw and bolt	3.6	4.6	5.0	5.6
Parts for Induction Pipe. Counterflange with washer and 2 bolts	6.0	6.6	7.6	8.6
Flange Washer	6	1.0	1.0	1.0
Flange Bolt	3	3	3	3
Bend	8.6	12.6	15.0	
Teepiece	8.6	12.6	14.0	
Copper Tube 12" Length	7.6	12.6	14.0	
Copper Tube 20" Length	14.6	£1. 0.0	£1. 2.0	
Parts for Heating arrangements. Air Strangler with register and fixing collar for Flexible tube	£1.12.6	£1.15.0	£2. 0.0	£2. 5.0
Hot Air Bend	10.6	12.0	13.0	16.6
Register for cold air	4.6	5.0	5.6	7.6
Flexible tubing for Hot Air, per foot	2.6	3.0	3.0	3.6
Fixing Collar for flexible tube with bolt and nut	3.6	4.6	5.0	5.6
Tube for Union	3.0	3.6	4.0	4.6
Flange Governor with 2 washers and 2 bolts	£1.15.0	£1.17.6	£2. 2.6	
Bolt for above	6	6	6	
Washer for above	6	6	1.0	
Name Plate	6	6	6	
Dismounting Nut	6.0	6.0	6.0	6.0

"SOLEX" CARBURETTORS "MO" TYPE

Hot Air Muffs	No 1 Diameter of Exhaust Pipe 22 to 28 m/m	No 2 Diameter of Exhaust Pipe 26 to 40 m/m	No 3 Diameter of Exhaust Pipe 38 to 48 m/m	No 4 Diameter of Exhaust Pipe 46 to 58 m/m
Price . . .	6.0	8.0	10.0	12.0

PRICES OF PARTS STANDARD ON ALL CARBURETTORS

	Main Jet		2.6	
	Auxiliary Jet		1.6	
Main Jet Stand Horizontal or Vertical.	Main Jet Stand		4.6	7.0
	Main Jet Stand Cap "MOH" or "MOV"		2.6	
	Jet Carrier Washer	per dz.	6	
Parts for Butterfy Spindle.	Throttle abutment plate with Screws: Throttle abutment plate	2.6	4.0	6.6
	Slow running screw	6		
	Nut for above	6		
	Throttle stop screw	6		
	Throttle lever		1.3	
	Nut for Throttle Spindle	per pr.	1.0	
	Washer for Above		3	
Swivelling Petrol Union.	Swivelling Union Nut		2.6	5.0
	Swivelling Union		2.6	
	Washer for Union Nut	per dz.	6	
Direct Filter.	Nut and Bolt for Filter Union		2.6	7.6
	Union for Filter		4.0	
	Gauze for Filter		1.0	
	Large Washer for Filter	per dz.	6	
	Small Washer for Filter	per dz.	6	
Indirect Filter.	Nut and Bolt for Filter Union		2.6	7.6
	Union for Filter		4.0	
	Gauze for Filter		1.0	
	Large Washer for Filter	per dz.	6	
	Small Washer for Filter	per dz.	6	
	Needle and Seating with washer		5.0	
	Washer for Needle seating	per dz.	6	
	Fixing Screw for Air Bell		6	
	Choke Tube fixing screw		6	
	Tickler complete		6	
	Screw for collar		6	
	Roller with flat for Strangler attachment collar		9	
	Screwed roller for Strangler attachment collar		9	
	Union for suction pipe of Autovac		2.0	
	Dashboard Strangler control		7.6	
	Ball Joint		2.6	
	Copper Tube 6×8 for needle valve	per foot	1.6	
	Cable for Strangler control	per foot	3	
	Clip for cable		1.0	
	Lever for Strangler horizontal or vertical		1.3	
	Spring for Strangler		1.0	
	Air Regulating Screw with Spring for slow running		2.6	

L'ÉDITION ARTISTIQUE