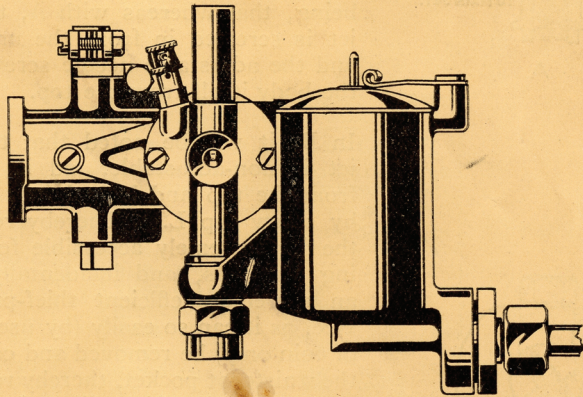


General Instructions for  
Maintenance and Adjustment of

The  
*Atmos*

CARBURETTER  
MODEL "B."



THE ACME OF PERFECTION  
AND SIMPLICITY.  
EVERY BIT BRITISH  
IN EVERY WAY.



# *Atmos*

## CARBURETTER, Model "B," or Butterfly Throttle Type.

### General Guide to Maintenance and Tuning.

#### JET BODY.

This in the Cox "ATMOS" is a separate unit from the main carburetter body and carries in a most accessible and simple manner both main and pilot jet. Illustration A is of the jet body as originally introduced and fitted to the first 10,000 carburetters made.

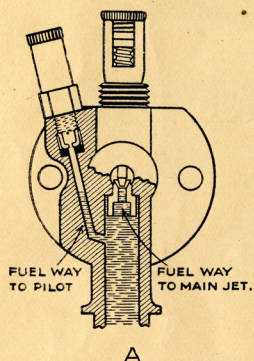
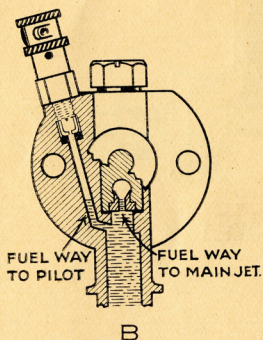


Illustration B is of the jet body as now fitted.

It will be noted that the fuel passages are identical. The only difference being, that whereas with A, the main jet is screwed in from the underside, and the adjustable needle screwed into the body itself from the top.



In B, it will be noted that the main jet is non-adjustable, and is inserted from the top and locked into position by screw cap L. Thereby rendering the jet extremely accessible for cleaning purposes, and incidentally forms an extremely efficient thief-proof device, as it can so easily (by use of edge of coin only) be removed and carried in the waistcoat pocket, thereby rendering the car undriveable until replaced.

The only other difference is the air cap on pilot jet G1. This originally was of non-adjustable type as shown A while on all carburetters now produced it is adjustable as shown B. These adjustable caps are interchangeable with the original non-adjustable.



**Pictorial Instructions** are here given showing how simple it is to clear either adjustable or non-adjustable main jets, also how to clear pilot jet.

The removal of adjustable pilot jet air cap in no way affects its setting.

**TO CLEAR MAIN JET**

WITH EDGE OF COIN OR SPANNER UNSCREW NUT **L** AS SHOWN. LIFT OUT JET CARRIER **M** JET WILL BE FOUND FIXED IN BOTTOM OF CARRIER AS SHOWN **M**!. BLOW JET CLEAR OF OBSTRUCTION AND REPLACE.

WHEN REPLACING SEE THAT FEATHER PEG **N** ENGAGES WITH SLOT, REPLACE CAP AND TIGHTEN WELL DOWN. DO NOT POKE JET WITH ANY METAL INSTRUMENT.

D

**TO CLEAR MAIN JET. ADJUSTABLE TYPE.**

WITH FINGERS ONLY UNSCREW THIS JET NEEDLE OUT WIDE POINT BETWEEN THUMB AND FINGER FLOOD FLOAT CHAMBER REPLACE NEEDLE TO ORIGINAL SETTING ALWAYS LIFT TO TURN. SEE FIG. 2.

E

**SPARE PARTS.**

*Main Jet M.*  
Non-adjustable ... 2/6

*Main Jet re-  
taining Nut L*  
... 1/6

*Adjustable Air  
Cap for Pilot*  
... 2/6

*Pilot Jet... 1/6*  
Sizes:  
13, 16, 18, 20

**TO CLEAR CHOKED PILOT JET**

WITH FINGERS, UNSCREW CAP **G**!. ATTACH TYRE PUMP, OR SUITABLE LENGTH OF RUBBER TUBE TO THREAD **G**!. A FEW STROKES OF THE PUMP OR A SHARP BLOW OR SO WITH THE MOUTH THROUGH RUBBER TUBE WILL EFFECTUALLY CLEAR JET .

REPLACE CAP **G**! AND SCREW TIGHT DOWN.

F

**SPARE PARTS.**

*Jet Needle for  
Adjustable Jet*  
... 3/-

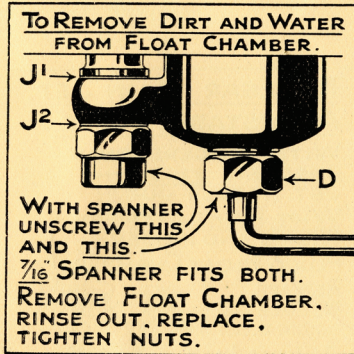
*Complete Ad-  
justable Jet  
Assembly to fit  
in place of Non-  
Adjustable Jet*  
... 5/-



Another slight modification introduced after the first 10,000 carburettors made is in connection with the float chamber.

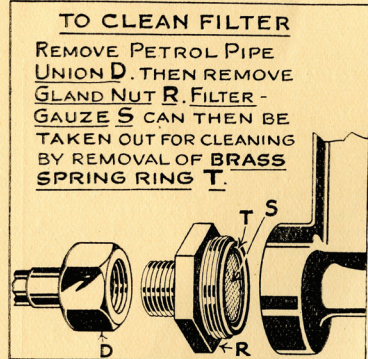
Originally the filter was contained in the chamber itself in the form of a cup. The later models have the filter contained in a banjo formation at base and on side of the float chamber.

Pictorial instructions are here given showing how to keep either type dirt free.



G

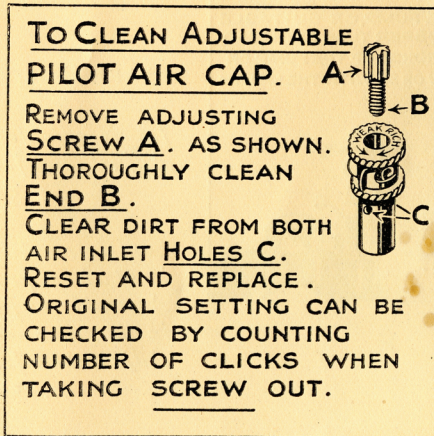
Spare Gauze Filter Disc



H

... 6d.

## Special Note re Pilot Jet Adjustable Air Cap.



THIS REQUIRES a little attention now and then for a rather curious reason. Only air passes through it, yet after long usage, dirt from the atmosphere gradually collects on the end of adjusting screw, and in the air inlet holes, thereby obstructing the free flow of air and causing slow running mixture to become rich, which eventually may adversely affect fuel consumption. Illustration explains how to clear pilot air cap. It may also be cleared without dismantling, by washing it thoroughly in petrol until all visible dirt is removed.



¶ HAVING GIVEN PARTICULARS of how to clear jets, etc., of dirt obstruction, we will set out here the usual symptoms which indicate that cleaning may be necessary.

- (1) ENGINE STOPPING when throttle is allowed to close, indicates choked pilot jet.
- (2) ENGINE SPITTING BACK, or lacks power when throttle is opened, indicates choked main jet or choked filter, or water in float chamber. Many engines will spit back a little while cold, this of course is due to the cold, and does not necessarily indicate anything at fault.

There are, however, other things which can cause the same symptoms as above set out.

¶ THE SYMPTOMS indicated in No. 1 can be caused by throttle stop screw "G" being so set as to allow throttle to close too far. While the symptoms as set out in No. 2 can be caused through faulty ignition, such as plugs, plug wires or weak spark from magneto or coil.

Valves not seating properly through faulty tappet adjustments, or stems sticking in guides, can also be a cause of the trouble.

## Starting from Cold.

THIS, with a Cox "ATMOS," should never be a trouble, providing there is a spark to fire the mixture delivered.

¶ FLOODING should not be necessary. Just open the throttle on hand control a little, only a little, see that the air strangler is properly closed, and engine cannot help but start if the ignition system will deliver an efficient spark at the speed which engine is cranked over.

¶ DO NOT ALWAYS TAKE IT FOR GRANTED that because the strangler operating device on instrument board is operated to its full extent, that air strangler is properly closed, the connection to strangler may have stretched and requires taking up a little.



## Note re Cold Engines.

AS NO ENGINE can perform properly until sufficiently warm, and this is not until water in radiator is in the region of 180° F., those who wish for real economy and efficiency will be wise, during Winter months, to use such devices as radiator muffs or shutters to enable such temperature to be attained quickly, and retained consistently.

## Wise Procedure when Troubles arise.

IT IS ALWAYS a wise procedure when troubles arise with an engine to avoid jumping to conclusions. Many jump to the conclusion that whatever troubles arise with the running of an engine, the carburetter must be at once re-adjusted, with the result that more often than not the poor carburetter becomes so much re-adjusted, jets reamed out, etc., etc., until when the real cause of the trouble is actually found, the carburetter setting is so much unlike its original and correct self that it cannot function in any way properly.

¶ A COX "ATMOS" CARBURETTER cannot of itself work out of adjustment or vary in its performance as a carburetter, providing jets are free of dirt, and float chamber free of water, a Cox "ATMOS" will, in accordance with how it is set, always pass exactly the same fuel to air ratio, and atomise in exactly the same manner, whatever the weather or season of year may be.

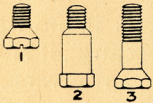
¶ AS MOST CARS are so radiated that they run far too cold during Winter and early Spring, many are prone to blame the carburetter for the troubles which fundamentally arise from an engine running too cool. Such troubles mainly bring two things most noticeable, i.e., poor consumption and lack of power.



## DETAILS OF CARBURETTER PARTS AND THEIR FUNCTIONAL DUTIES.

*See Illustrations, Figs. 1 and 2, on Folder  
at Back of Booklet.*

“A & B” ..... JET BODY SCREWS, securing jet body to main body of carburetter. These never need to be removed, either for cleaning of carburetter or the making of any adjustments.



*Spares ... 6d. each.*

*State if Type 1, 2, or 3 is required.*

“C” ..... JET BODY NUT, securing float chamber to jet body to enable float chamber to be easily removed for cleaning, etc. Keep tight.

*Spares ... 1/6 each.*

“D” ..... PETROL PIPE UNION, attaching main supply pipe to float chamber.

*Spares, complete union ... 1/6*

“E” ..... JET NEEDLE COVER CAP, merely a cover for adjustable jet thimble F. In no way affects carburetter performance. *Spares ... 8d. each.*

When main jet is of non-adjustable type, E and F are not present, their place being taken by a locking nut L, shown in illustration D page 2.

When carburetters are fitted by car manufacturers as standard, the non-adjustable main jet is nearly always adopted.

“F” ..... JET NEEDLE (ADJUSTABLE JET) by turning this in clock or anticlockwise direction size of main jet is rendered larger or smaller. Always lift to turn, a little movement makes a big difference. *Spares ... See page 2.*



“G” ..... SLOW RUNNING ADJUSTING SCREW, or throttle stop. Determines the distance the throttle is allowed to close for slow running. Screwing inwards sets engine faster, unscrewing sets engine to run slower, or stop.

*Spare Screw and Nut ... 1/6*

“G1” ..... PILOT JET AIR CAP, ADJUSTABLE TYPE. By inserting small screw driver in slot and turning clockwise slow running mixture is enriched, by turning anticlock mixture is weakened.

This requires careful setting, but is in no way difficult. Care being necessary because, if slow running mixture is set too rich it can adversely affect miles per gallon, particularly when traffic driving.

*Spares ... See page 3.*

“H” ..... DIFFUSER TUBE AND FIXING BOLT FOR CHOKE. Withdrawing this enables choke tube to be removed. Never any necessity to remove unless it is desired to fit another choke or diffuser tube. *Spares ... 1/6 each.*

“I” ..... JET BODY. Should always be held tight by screws “A” and “B” and never need be removed.

*Spare, complete Assembly ... 12/6*

*Pilot on either right or left hand. Illustration shows left hand.*

“J1” & “J2” ..... FIBRE PACKING WASHERS. These have two functions. One to make joint petrol tight. Two, to enable fuel level in jet to be raised or lowered if necessary. The more washers that are inserted at J1 the lower the fuel level in jet.

Lowering the fuel level in jet has the effect of weakening the mixture at early throttle openings without affecting all-out power.

*Spares ... Six 4d.*



If level is set too low it can produce a flat spot when just opening up from slow running.

For best economy use a level as low as possible, but not so low as to produce a noticeable flat spot when driving.

A flat spot when engine is running light is often not findable when on the road. Therefore, do not take too much notice of engine's behaviour on this point when it is not working under normal conditions.

## Tuning for Consumption.

MANY have the opinion that reducing jet size is the way to obtaining low fuel consumption. While such procedure is fairly correct with most carburettors, it is not so with the Cox "ATMOS," because, owing to its design, it is not possible to have really good clean best power from the engine at full throttle without also having a correct full throttle mixture, which is likewise economical.

¶ A JET which is too large of course means loss of economy, it likewise means a fluffy engine lacking full throttle power.

¶ A JET which is too small also means loss of economy, likewise power. Therefore, with a Cox "ATMOS," if full power is correct, do not alter jet size if economy is not correct. Full power being correct, means that choke size and jet size are right.

¶ THE READER will perhaps say to himself now, "What the ..... can one do to effect economy if jet is not to be altered?" Here is what is to be done—the mixture must be weakened low down on the throttle range, over that section controlled by the first quarter of the throttle's movement from closed, or idling engine position.



¶ THERE ARE TWO THINGS which can control this mixture character without affecting full power.

- (1) PILOT JET AIR CAP. If this is so set as to give a richer mixture than necessary, that will cause pilot to remain in action too long. Therefore weaken as far as permissible without producing a flat spot when driving.
- (2) FUEL LEVEL IN JET BODY. The height of this affects the point when the main jet can come into action. Lowering level, as previously described, delays the point at which main jet can cut in, but does not affect all our power. Lowering fuel level in jet by means of the adjustment provided by use of fibre washers has the effect of weakening the mixture over the early throttle range, therefore for maximum economy use as low a level as permissible without introducing a flat spot.

Fuel level affects mixture character at early throttle openings, but does not affect either slow running or all-out power, or starting from cold.

## Some Causes of Bad Consumption.

Having treated with how the carburetter can be tuned for consumption, allow us to have a few words about how bad consumption can be obtained without the carburetter having any control over the matter.

Engine running too cold is a very common cause between early December and the end of May. Many motorists during this period only use their cars for short runs, such as home to business, golf, theatre, shopping, etc.

Short journeys, long waits, engine never really warm. A petrol engine cannot work at its best for power and economy until its temperature is in the region of 180° F. During the period mentioned, many engines seldom get beyond about 130° F. All this cold running means fuel wastage, over which the carburetter has no control.



¶ THEN THERE ARE mechanical causes such as brakes not freeing properly, valves not closing properly, plugs not firing properly, magneto not functioning properly, etc., etc.

¶ THEN THERE IS the new engine, which is (if it is going to be a good engine in later life) stiff for the first nine to fifteen hundred miles, that means high fuel consumption due to the amount consumed in power absorbed by such stiffness.

¶ THEN THERE IS the engine which has been thoroughly overhauled and put together with the wrong valve or ignition timing, or both. The carburetter maker usually finds this variety in the early Spring.

¶ THEN THERE IS driving style. The driver who thinks "safety first," and remains on low gears whenever in traffic, believing that top gear was only intended for open country. The driver who always drives with ignition full retard, except on very rare occasions when feeling really frolicsome—And "Oh!" there are so many other things that can cause heavy fuel consumption for number of miles travelled, over which the carburetter has no control that several pages would be required to enumerate them.

## Tuning for Speed.

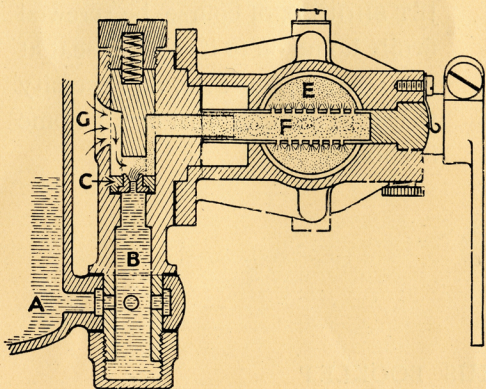
THIS is merely a question of selecting right size of choke and jet to best suit engine for the particular type of speed and power required. Super-tuning for speed and power is, however, more a question of engine tuning rather than carburetter tuning.

¶ THE COX "ATMOS" can be tuned to give just as much, and usually more, power than any other carburetter. This, for the information of those who are seeking the last ounce of *real power*. We italicise real power advisedly, because the Cox "ATMOS" does give real power, coupled with smooth engine, which smoothness has frequently been mistaken for loss of power.



## Sectional View of Carburetter

*showing how perfectly the Fuel is atomised and blended with the air.*

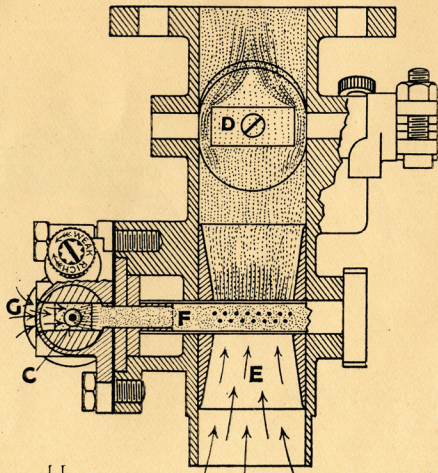


FUEL FLOWS from float chamber A to jet body B and rises to jet C, engine suction draws air through choke tube E, which exhausts air from diffuser tube F and causes it to be drawn in at G and follow in direction indicated by arrows across main jet C, causing fuel to be sprayed from same into the passing air, the petrol and air at this point commence to blend and form a rich mixture in diffuser tube F.

THE RICH MIXTURE in diffuser tube F is then diffused through four rows of fine holes into and across the main air stream passing through choke E.

FROM THIS it will be seen how perfectly the Cox "ATMOS" blends fuel with air, even before the mixture is allowed to be discharged into the main choke tube or air stream. The butterfly throttle D is also specially formed in such a manner as to effect still further blending. The whole combination being covered by many worlds' patents. It is interesting to note how carburetter designers generally are endeavouring to copy (as near as patents will allow) the principles embodied in the Cox "ATMOS."

THE COX "ATMOS" means greater engine reliability and a very much reduced engine overhaul bill, and is admitted to be the most scientifically perfect carburetting instrument before the motoring public to-day—AND IT IS BRITISH.





For Reference see Pages 6 and 7.

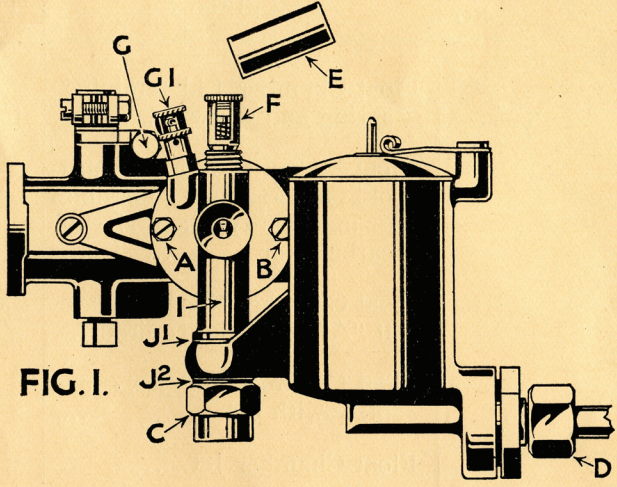


FIG. 1.

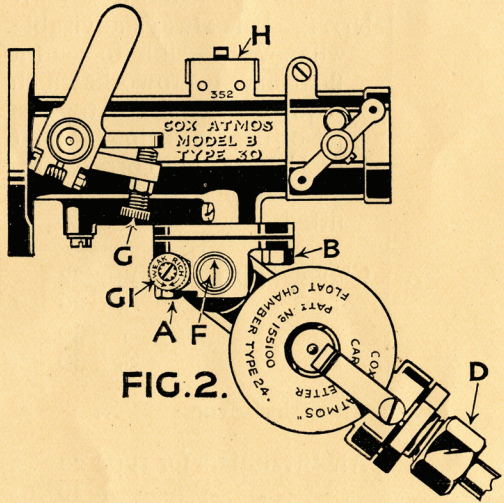

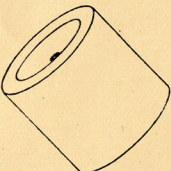
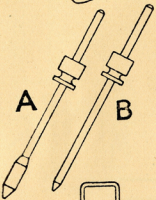

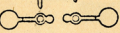

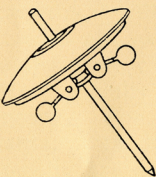
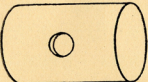
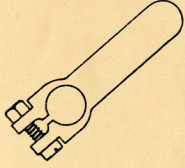
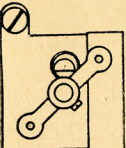


FIG. 2.

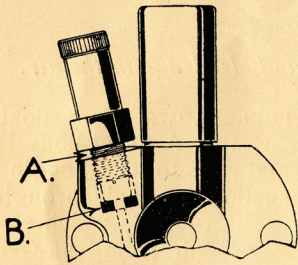
These illustrations show carburettor fitted horizontal. The same references also apply when carburettor is fitted vertically.



## SPARE PARTS not previously mentioned in text.

PART NO.	DESCRIPTION.	PRICE.
		
	23 Float Chamber Lid retaining spring and screw ... ..	1/- <i>One</i>
	22 Float—when ordering, return old one as sample if possible or mention type and size of carburetter ... ..	4/- "
	19 Float Chamber Needle—state if "A" or "B" is required ... ..	3/6 "A" 2/- "B"
	20 Float Chamber Toggles, complete with pin ... ..	2/6 <i>Set</i>
	24 Float Chamber Jet ... ..	3/- <i>One</i>
	Float Chamber Lid, complete assembly as shown ... ..	10/6 "
	NOTE—It is always advisable whenever possible to send a float chamber to works which requires such parts as toggles jet or needle fitting, so that fuel level can be correctly re-checked after parts have been fitted.	
	50 Choke Tubes for Type 22 ... ..	3/6 <i>One</i>
	" 26 ... ..	4/- "
	" 30 ... ..	4/6 "
	" 36 ... ..	6/- "
	15 Throttle Lever ... ..	1/9 "
	Air Stranglers for type 22 ... ..	4/-
	" " " 26 ... ..	5/-
	" " " 30 ... ..	6/6
	" " " 36 ... ..	7/6





PLEASE NOTE that it is correct for pilot jet not to seat at point A, the petrol seal being made at point B.

JET SHOULD, of course, be screwed firmly home on to its copper seat at B. There is, however, no necessity to use great force. Just firmly home is enough.

THIS BOOKLET  
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LOWER ESSEX STREET  
BIRMINGHAM  
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*Atmos*

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