

TECHNICAL MANUAL 30.1

(Motor-cycles)

INDUSTRIA NAZIONALE CARBURATORI

DELLO **ORTO**



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TECHNICAL MANUAL CARBURETORS

DELLORTO

MOTOR-CYCLES

Carburetors

VHB ... A

27 - 28 - 29 - 30

VHB ... B

20 - 22 - 24 - 25 - 26

Applications

2- and 4- stroke road and competition engines
with cylinder capacities from 50 cc. to 500 cc.

1) FEATURES

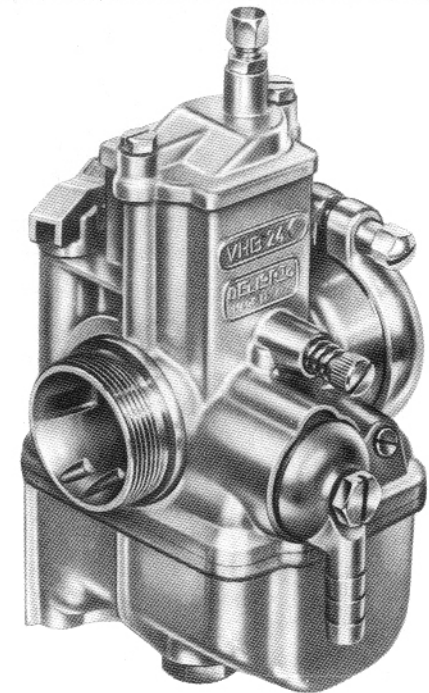
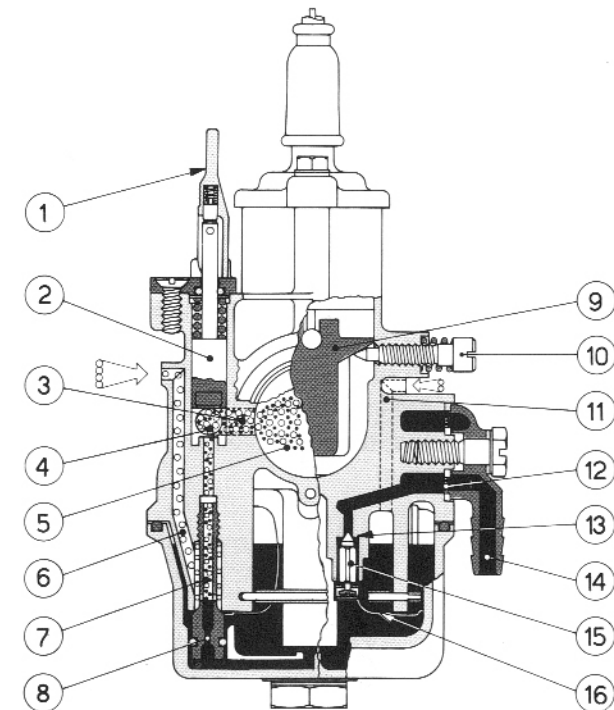
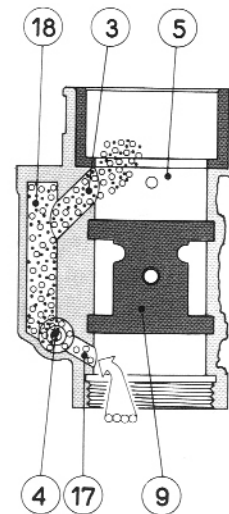
- Monobloc body with horizontal barrel and possible mounting up to 40 degrees
- Choke sizes: 27 - 28 - 29 - 30 for VHB A models
20 - 22 - 24 - 25 - 26 for VHB B models
- Square throttle slide with inclined return-spring
- Central constant-level float-chamber with double float
- Independent starting circuit
- Idle and main circuit centrally placed
- Tapered-needle mechanical mixture control
- Cuff mounting with insulating sleeve - from 40 mm to 35 mm for VHB A models; from 31,75 mm. to 28,57 mm. for VHB B models
- Fitting of inlet trumpets, filters and silencers possible

The series are made in left- and right- handed forms with left or right adjusting screws, (looking from the air-inlet side) suffixes D signify right, S signify left.

2) OPERATION

a - Starting

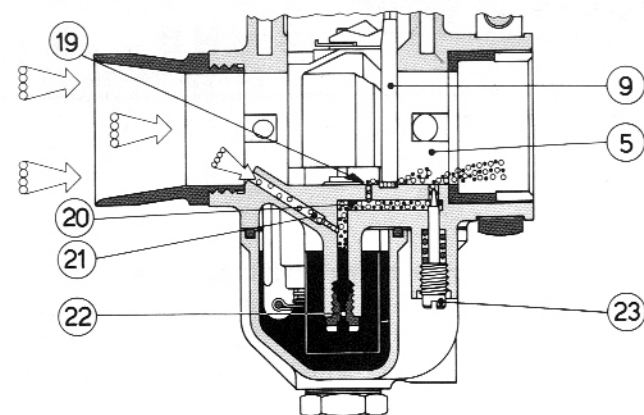
Fuel reaching the union (14) passes through the filter (12) to the seat (13) where the needle (15) fixed to the float (16) controls the flow into the float-chamber thereby maintaining a constant level. The chamber is vented to atmosphere through the passage (11). With the starting valve (2) open, the fuel regulated by the jet (8) passes into the emulsion tube (7) where it mixes with air from the channel (6), then passing into the valve chamber (4); it finally mixes with air coming through the passage (17) and, passing along the drillings (18) and (3), is emitted into the main barrel below the slide



b - Idling

Fuel from the float-chamber is regulated through the idle jet (22); it mixes with air from the intake (21) and flowing through the passage (20) reaches the idle-mixture screw (23); from here, the regulated mixture flows into the main barrel (5) below the slide (9).

The screw (10) controls the opening of the throttle slide at idle.

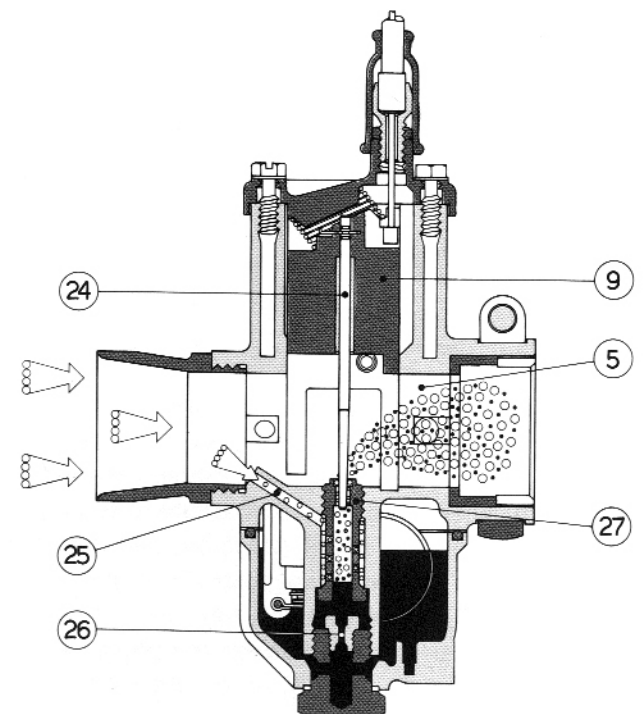


c - Progression

On first opening the throttle (9), ie, in passing from idling to full throttle, mixture also reaches the main barrel (5) through the progression holes (19).

d - Full - throttle

With the throttle slide (9) open, fuel from the float-chamber is regulated by the main jet (26), passes through the emulsion tube (27) where it mixes with air from the duct (25); (some settings do not use this pre-emulsifying); then it flows into the main barrel (5), regulated by the tapered-needle (24) where it mixes with air coming from the main inlet.



3) ADJUSTMENT

a - Idling

Idle setting should always be carried out with the engine hot, screwing in the slide screw (a) to obtain a slightly higher idle speed. Then unscrew or screw in the mixture screw (b) to obtain the most even idle.

Then progressively lower the idling speed (a) to the desired level.

b - Intermediate operation

From idle up to around one-fifth throttle, if it is necessary to change the mixture strength, one may need to fit another slide with a smaller cutaway to enrich, or a slide with a larger cutaway to weaken the mixture.

From around one-fifth to full-throttle the mixture strength is largely determined by the tapered-needle fixed to the slide in a groove with a circlip. To change the mixture, one should raise the needle to enrich or lower it to weaken the mixture by moving the circlip to a different groove in the needle.

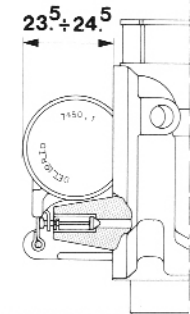
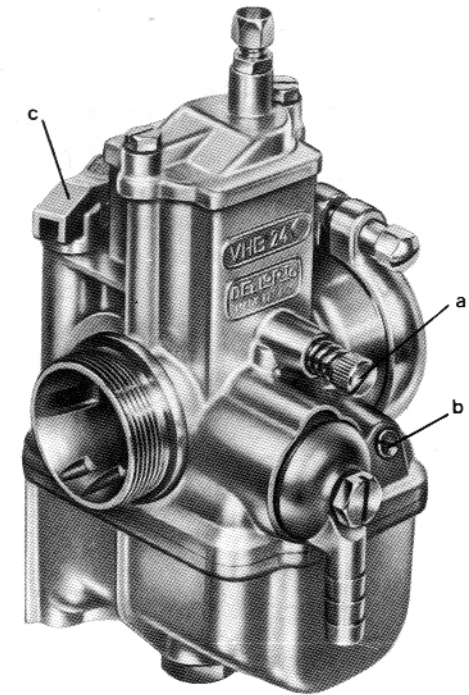
c - Full - throttle

In full-throttle operation, the carburation is principally determined by the main-jet size, so to change the mixture strength, one should fit a larger jet to enrich or a smaller size jet to weaken the mixture there.

d - Float level

Check that the float is the correct weight, marked on it, that it is not damaged and swivels freely on its hinge-pin.

Hold the body as shown so the float arm is in light contact with the needle and the valve is closed. In this position, check that the two half-floats are the correct distance from the edge of the body.



float-pin vertical

4) USE

a - Starting

To start from cold, check that the throttle is closed and open the starter valve by pulling the lever (c) into a vertical position. With a cable-operated starter, open the control completely on the handlebar.

At slightly higher temperatures, hold the throttle open a little.

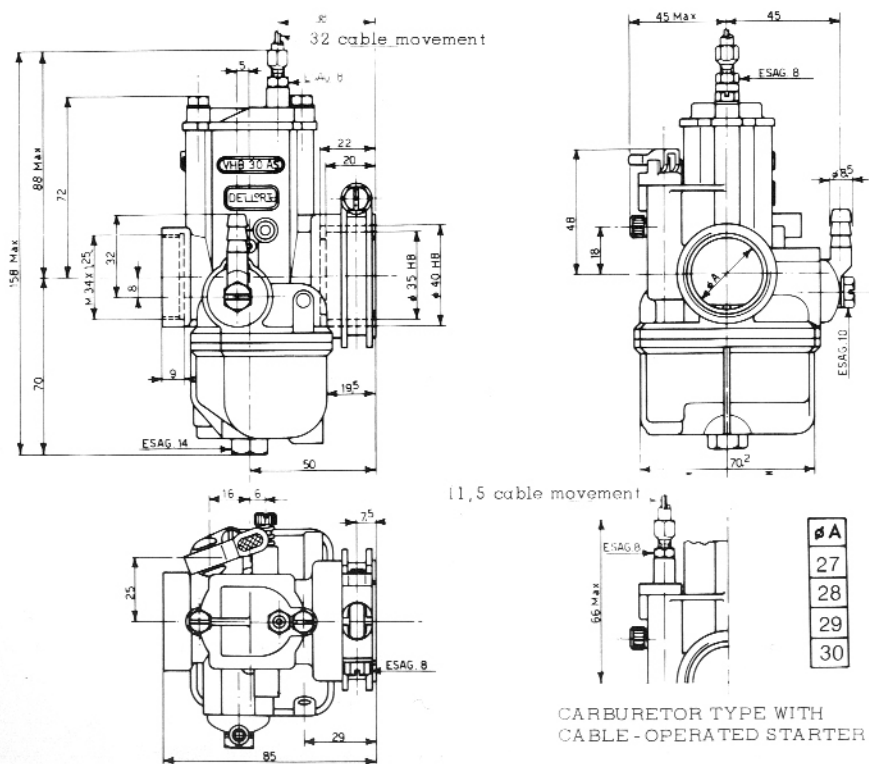
When the engine reaches normal running temperature, turn off the starter or the extra mixture introduced will upset the carburation.

5) MAINTENANCE

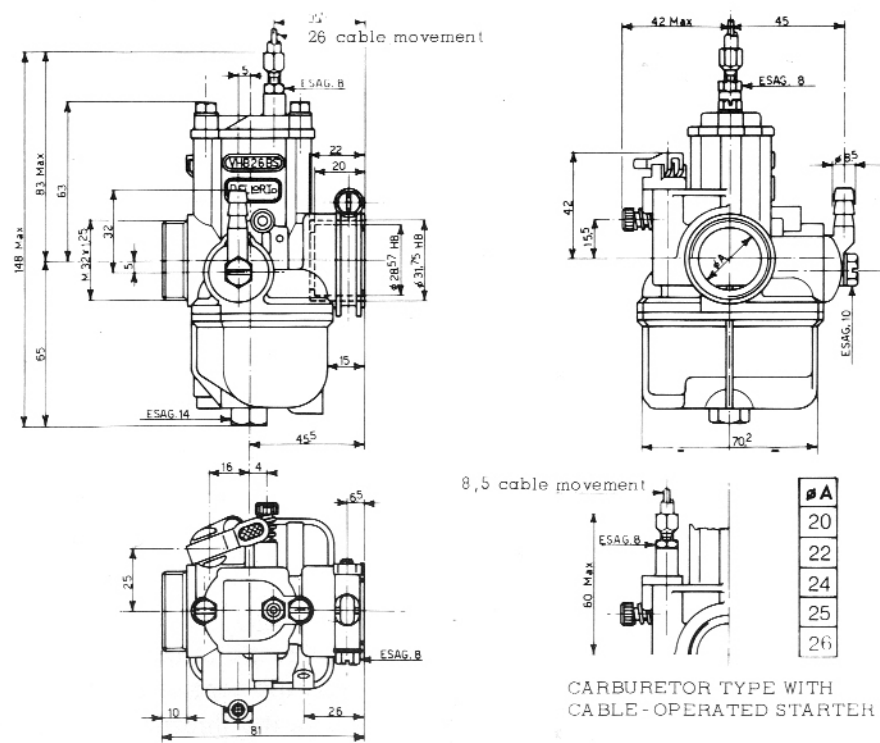
To keep the carburetor in good working order, you should occasionally carry out the following operations :

- Clean the carburetor, washing and drying all the parts including the body and especially the drillings and jets, etc.
- Check the components for wear, in particular the needle, needle-jet and the valve needle. Make sure the float has the weight marked on it and, before reassembling, check the needle- valve does seal against its seat.
- Replace any worn parts with new ones the same size as before.

DIMENSIONS



VHB...A



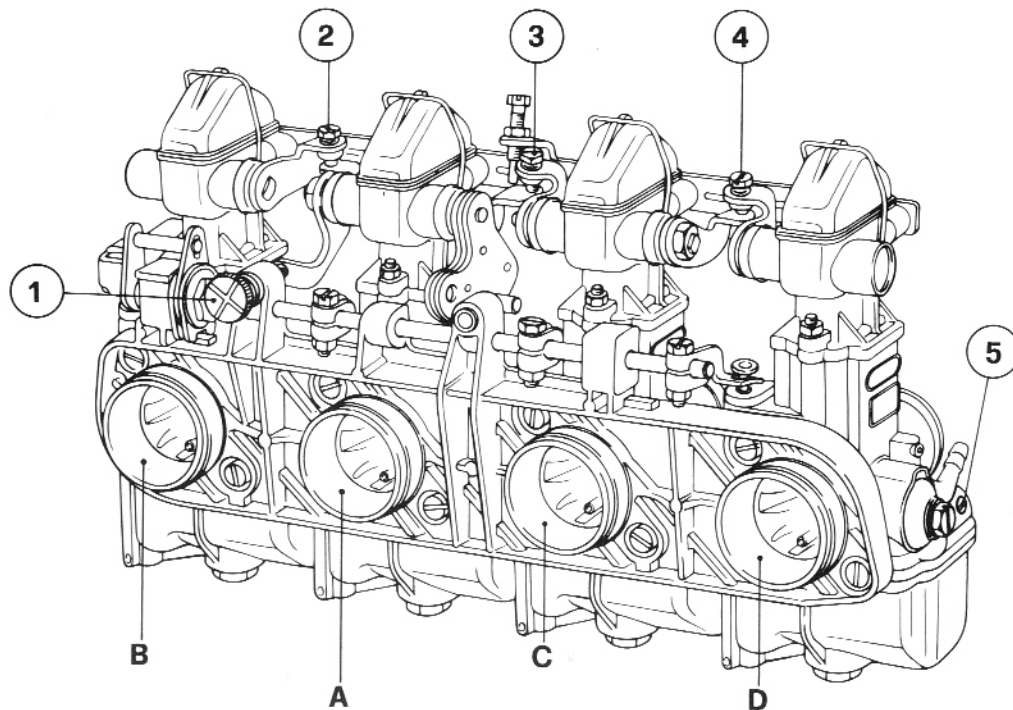
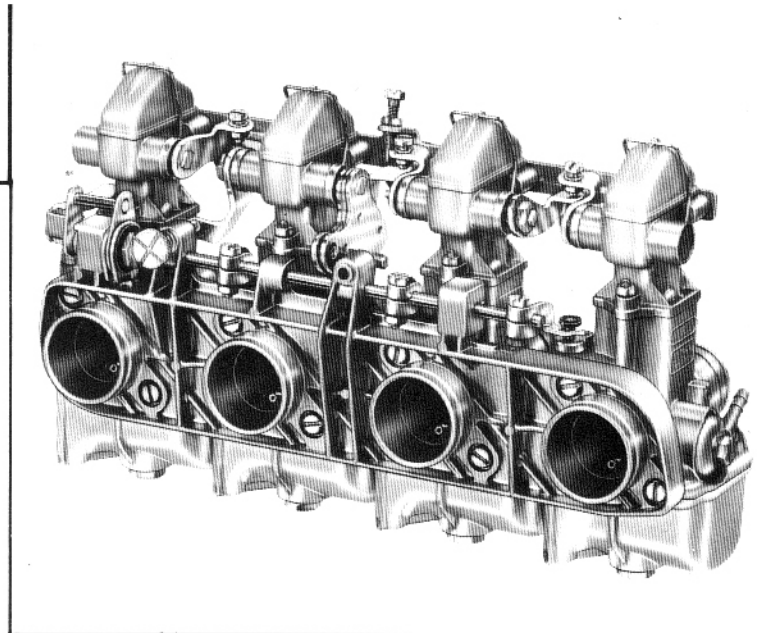
VHB...B

CARBURETOR SYNCHRONISATION AND IDLE ADJUSTMENT

- 1) - Connect a four-column mercury manometer to the carburetor inlets screwing the connections in place of the plugs provided.
- 2) - Unscrew each carburetor mixture screw (5) one whole turn from the fully-shut position.
- 3) - Start the engine and leave it running until normal operating temperature is reached; then adjust the idle-speed screw (1) to set the idle speed to around 1000 rpm.
- 4) - By adjusting the screws (2), (3) and (4), set the mercury column levels of carburetors B, C and D to the same height as A.
 (Unscrewing raises the column level; screwing in lowers it).
- 5) - Set the running of each cylinder as evenly as possible by adjusting the mixture screws (5), bearing in mind that screwing in these screws weakens the mixture and vice versa.
- 6) - Now repeat the alignment operation with the mercury columns and, using screw (1), set the idle-speed to the desired level, usually around 1000 rpm.

Where the carburetor assembly has been removed for maintenance or cleaning, before refitting, roughly synchronise the carburetors using screws(1), (2), (3) and (4) so that all the slides are open about 1 mm.

Then after fitting, carry out the six adjustment steps above.

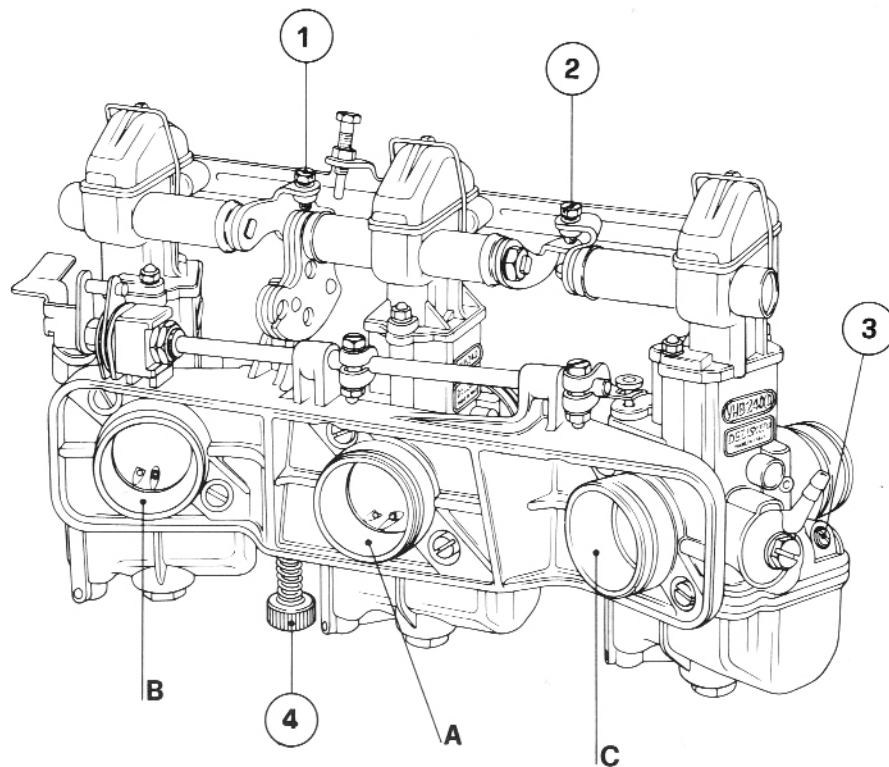
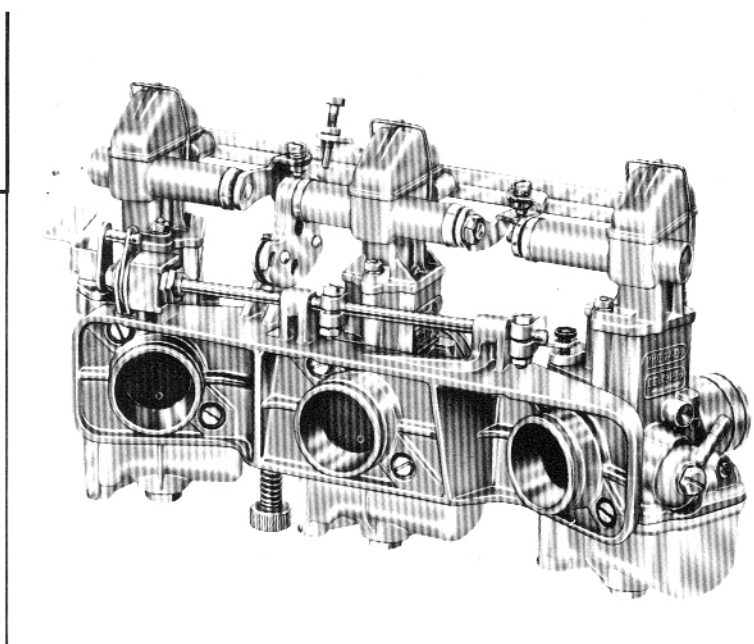


CARBURETOR SYNCHRONISATION AND IDLE ADJUSTMENT

- 1) - Connect the carburetor inlets to a mercury manometer using the tapped connections on the carburetors, having first removed the plugs.
- 2) - Unscrew each mixture screw (3) one full turn from the fully-closed position.
- 3) - Start the engine and leave it running until normal operating temperature is reached; then adjust the engine idle-speed with screw (4) to around 1100 rpm.
- 4) - By adjusting screws (1) and (2), set the mercury column levels of carburetors B and C to the same height as A. (Unscrewing raises the mercury level and vice versa).
- 5) - Set the running of each cylinder as evenly as possible using the idle-mixture screws (3); remember that unscrewing them enriches the idle mixture and vice versa.
- 6) - Now repeat the alignment operation with the mercury columns and then set the idle speed to around 1100rpm using screw (4).

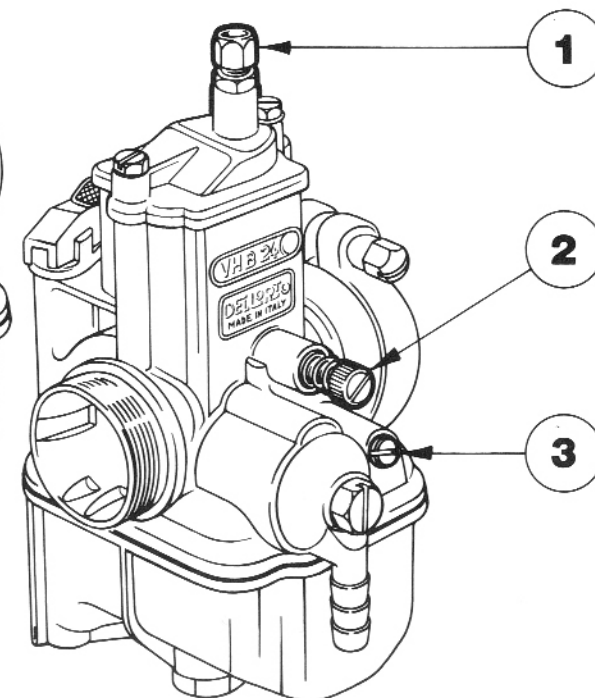
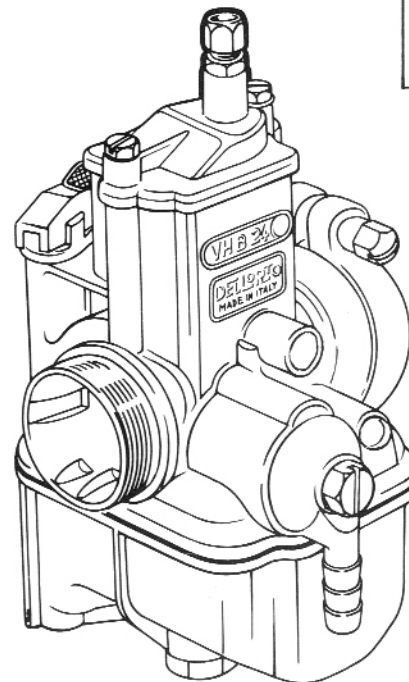
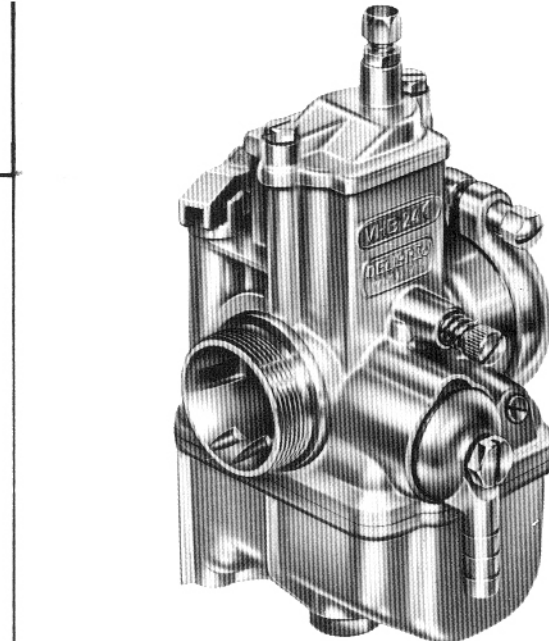
Where the carburetor assembly has been removed for maintenance or cleaning, before refitting, roughly synchronise the carburetors using screws (1), (2) and (4) so that all three slides are about 1mm open.

After refitting, proceed as above.



CARBURETOR SYNCHRONISATION AND IDLE ADJUSTMENT

- 1) - Check that full throttle at the twistgrip gives full throttle on each carburetor and that, with the throttle twistgrip fully closed, there is about 1mm of free play on each cable. If not, adjust the play using screw (1), first slackening its locknut.
- 2) - Unscrew each idle-mixture screw (3) one full turn from the fully-closed position.
- 3) - Connect each air intake to a mercury manometer using the plugged connections on each carburetor.
- 4) - Start the engine and leave it running until normal running temperature is reached; then set the idle speed using the screws (2) just enough to keep the engine running.
- 5) - By adjusting the slide screws (2), align the mercury columns; unscrewing raises the level and vice versa.
- 6) - Adjust the idle-mixture with screws (3) to obtain the most even running; remember that unscrewing enriches the mixture and vice versa.
- 7) - Now realign the mercury column levels by readjusting the throttles with screws (2).
- 8) - Recheck and, if necessary, readjust the free play on each throttle cable.
- 9) - Now set the engine running speed to around 2000rpm with the twistgrip and then align the mercury columns by adjusting the screws (1) having slackened the locknuts; unscrewing raises the level and vice versa.
- 10) - Stop the engine, having locked the nuts on the cable screws and remove the manometer, replacing the blanking-plugs.



1) FEATURES

- Monobloc body with horizontal barrel and with mounting possible up to 40 degrees.
- Choke sizes of: 30 - 32 - 34 - 36 mm.
- Cylindrical throttle slide.
- Central constant-level float-chamber and double float.
- Independent starting circuit.
- Idle system with central jet and mixture adjustment screw.
- Tapered-needle mechanical mixture control.
- Mechanical diaphragm accelerator pump with valves and jet.
- Cuff mounting with insulating sleeve from 45 - to 42 - mm.
- Fitting of inlet couplings or trumpets possible.

The series is made both left- and right- handed; with the adjusting screws mounted on the left or right, looking from the air inlet side; suffix D signifies right- and S left- hand.

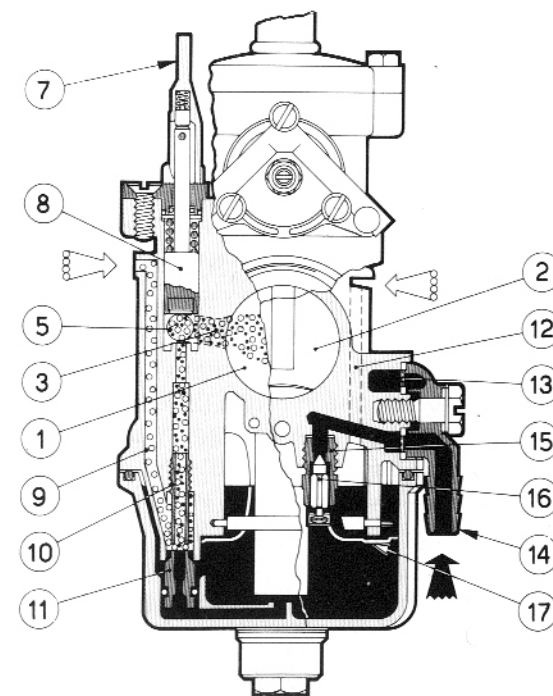
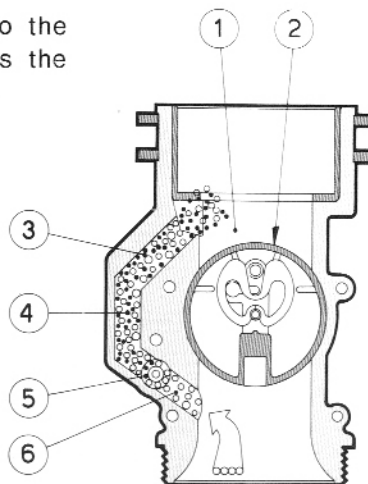
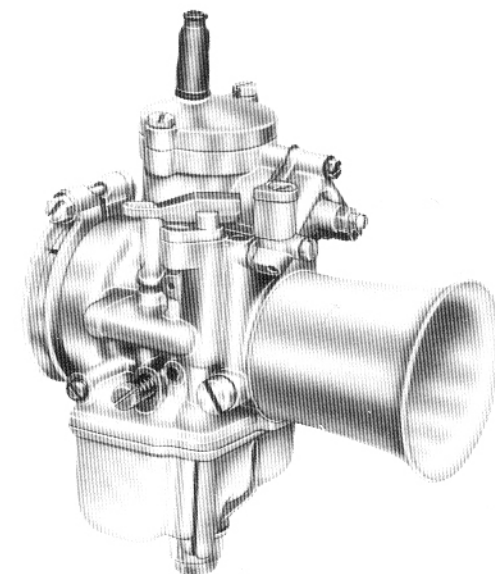
2) OPERATION

a - Starting

Fuel reaching the union (14) passes through the filter (13) to the seat (15) where the needle (16) fixed to the float (17) controls the flow into the float-chamber thereby maintaining a constant level. The chamber is vented to atmosphere through the passage (12).

The float (17) controls the opening and closing of the needle (16).

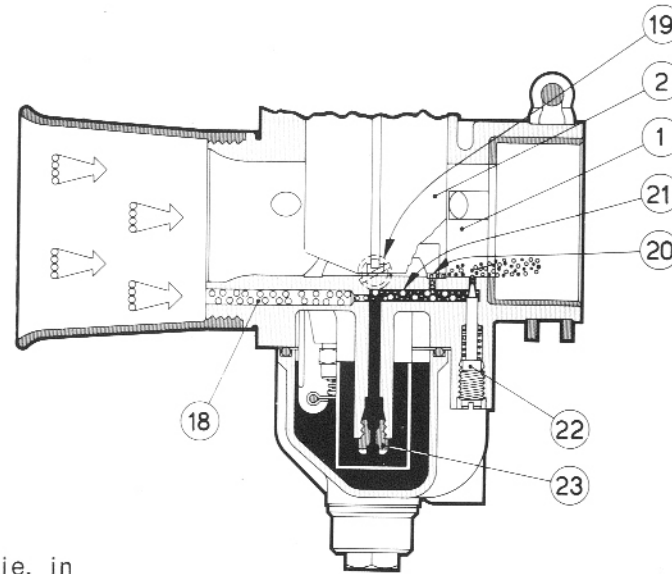
With the starting valve (8) open, by means of the lever (7), the fuel regulated by the jet (11) passes into the emulsion tube (10) where it mixes with air coming from channel (9); it then flows into the valve chamber (5) mixing with air from the drilling (6) and, passing along the passages (3) and (4), is finally emitted below the throttle slide (2) in the main barrel (1).



b - Idling

Fuel from the float chamber is regulated through the idle jet (23); it mixes with air coming through the inlet (18) and flows along the passage (21) to the idle-mixture adjustment screw (22); from there, the controlled amount of mixture flows into the main barrel (1) below the throttle slide (2).

Screw (19) regulates the opening of the slide at idle.



c - Progression

On first opening the throttle (2), i.e. in passing from idling to full throttle; emulsion mixture also reaches the main barrel (1) through the progression holes (20).

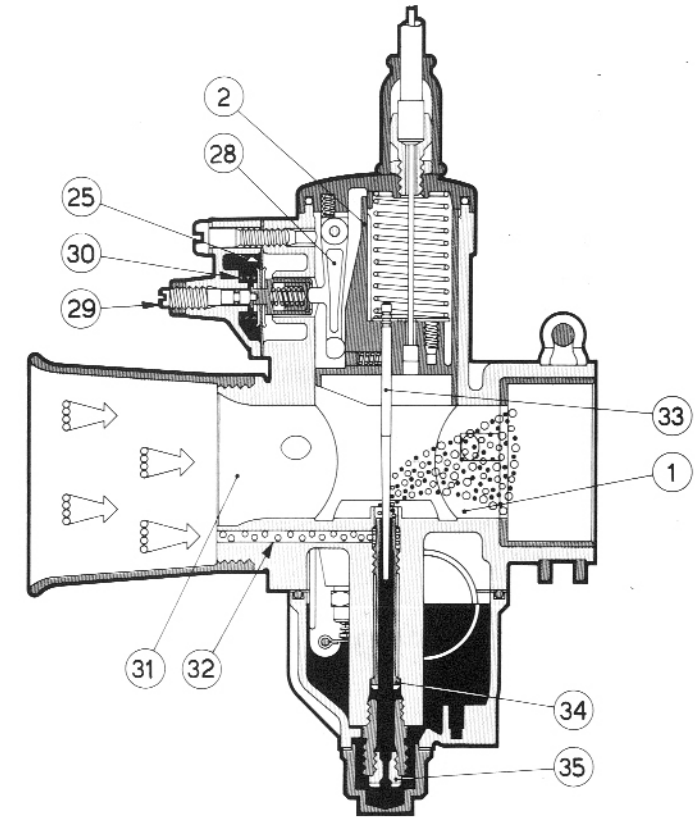
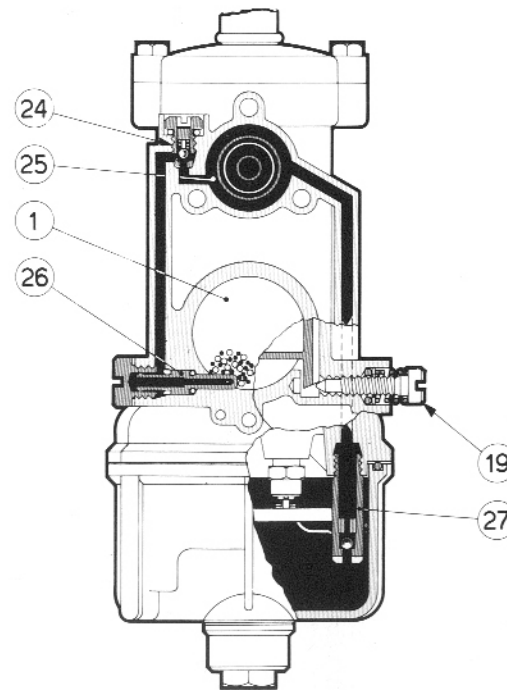
d - Acceleration

When the throttle slide (2) is opened, lever (28), operated by a cam in the slide, acts directly on the diaphragm (25), backed by the spring (30).

The diaphragm (25) then pumps petrol through the discharge valve (24) and the pump jet (26) into the main barrel (1).

On closing the throttle (2), the spring (30) returns the diaphragm (25) to its original position which draws fuel through the inlet valve (27) from the float chamber.

The adjusting-screw (29) controls the pump delivery.



e - Full - throttle

With the throttle-slide (2) open, fuel from the float-chamber is regulated by the main jet (35), and passes into the emulsion tube (34) where it mixes with air from inlet (32); it then flows, regulated by the tapered-needle (33), into the main barrel (1) where it mixes with air from the main inlet (31).

3) ADJUSTMENT

a - Idling

The idle should always be set with the engine hot, after screwing in the slide screw (a) to obtain a slightly-higher idling speed.

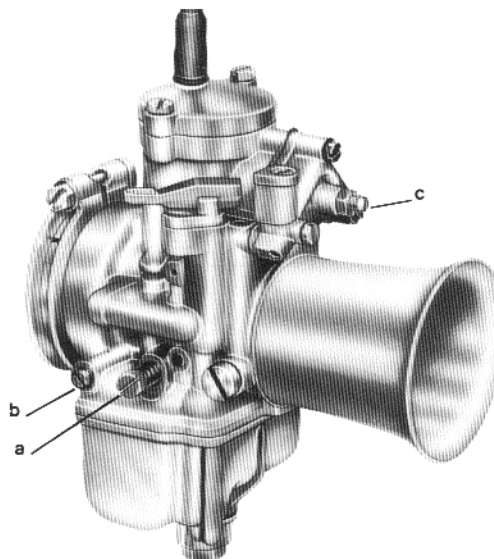
Then adjust the mixture screw (b) to obtain the most even running, progressively lowering the idle speed with screw (a) until the normal setting is reached.

b - Accelerator pump

The pump delivery can be checked by fixing the carburetor on a special support connected to a petrol reservoir so that all the petrol pumped can be measured in a calibrated measure. Open the throttle completely and close it completely twenty times, with a few seconds in between, and check the volume of fuel collected corresponds with the specification.

If not, using the adjuster-screw (c), change the delivery, checking each time, until the desired setting is obtained; remember that unscrewing increases fuel delivery and vice versa.

Finally, check the locknut is tight.



c - Intermediate operation

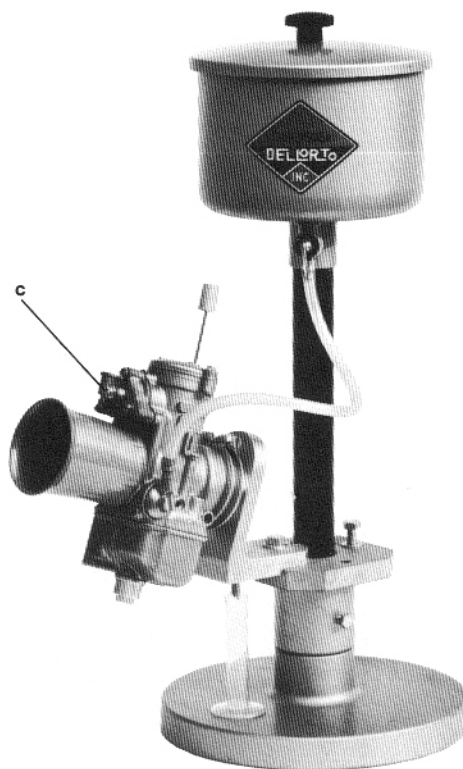
From idle to around one-fifth throttle, the slide must be changed to vary the mixture; a slide with a smaller cutaway will enrich the mixture and vice versa.

From about one-fifth throttle to four-fifths, the mixture is dependent mainly on the tapered needle held in the slide with a circlip.

To vary the mixture strength, the needle can be raised or lowered by fixing the circlip into another notch; lowering it weakens the mixture and vice versa.

d - Full - throttle

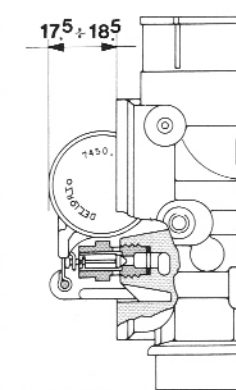
At full-throttle, the carburation is dependent mainly on the size of the main jet; so, to change the mixture strength, alternate size main jets should be fitted; larger main jets increase the mixture strength and vice versa.



e - Float level

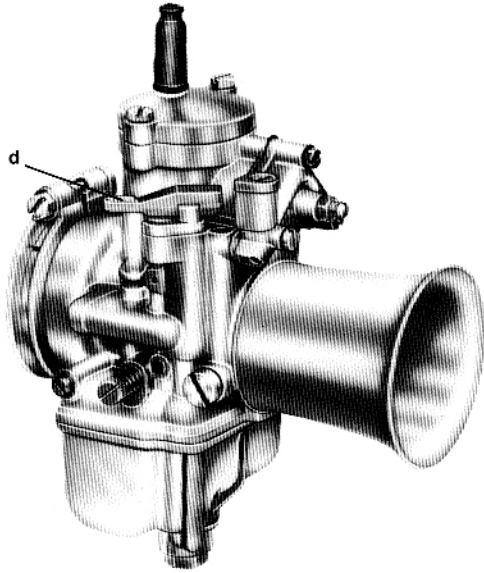
Check that the float has the specified weight, is not damaged and swivels freely on its hinge-pin. The weight is marked on the float.

Hold the carburetor body as shown so that the float arm is in light contact with the needle and the valve closed. In this position, check that the two half-floats are the correct distance from the edge of the body.



float-pin vertical

4) USE



5) MAINTENANCE

Keep the carburetor in good working order by occasionally carrying out the following operations:

- Clean the carburetor thoroughly by dismantling, washing and drying all the parts including the body and especially the drillings and jets.
- Check the components for wear, in particular the tapered-needle, needle-jet, the needle-valve and the pump diaphragm; make sure the float weight is as marked and before reassembling, check the needle-valve does seal against the seat.
- Refit the carburetor having replaced any damaged or worn parts with new ones of the same size, etc.

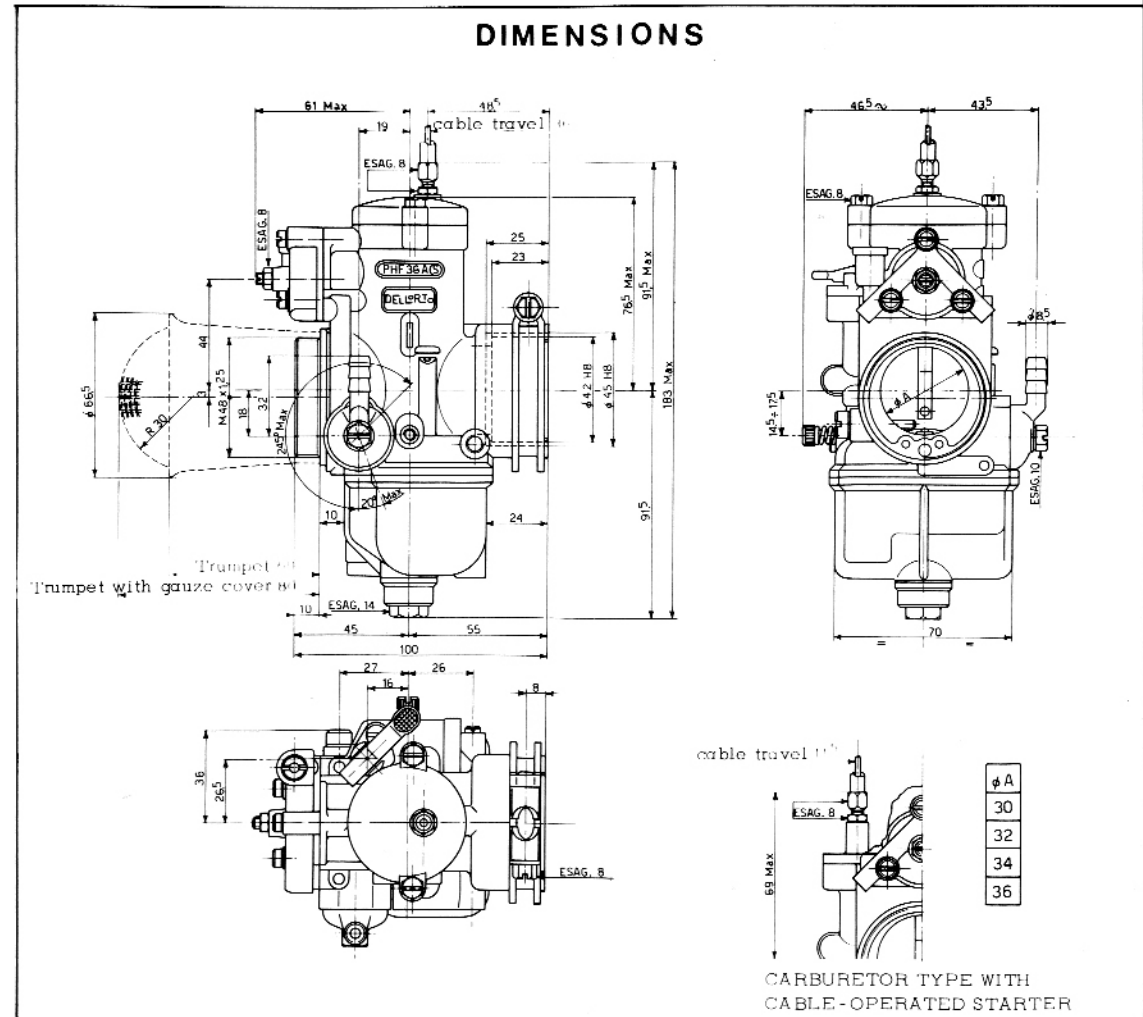
Starting

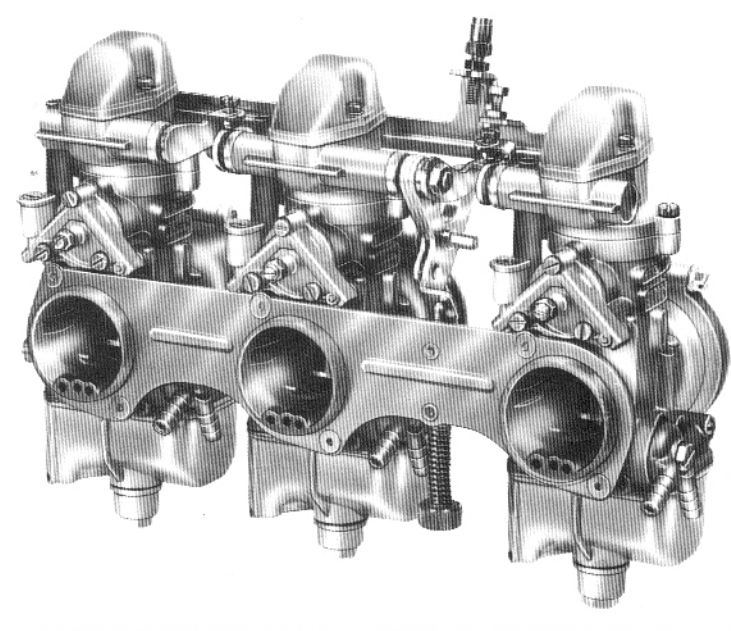
Starting from cold, keep the slide shut and open the starting valve by pulling up the lever (d) into a vertical position.

Where the starter is cable-operated, fully open the twistgrip control.

At higher temperatures, hold the throttle open a little

When the engine has reached normal running temperature, close the valve or the extra mixture produced will upset the running.



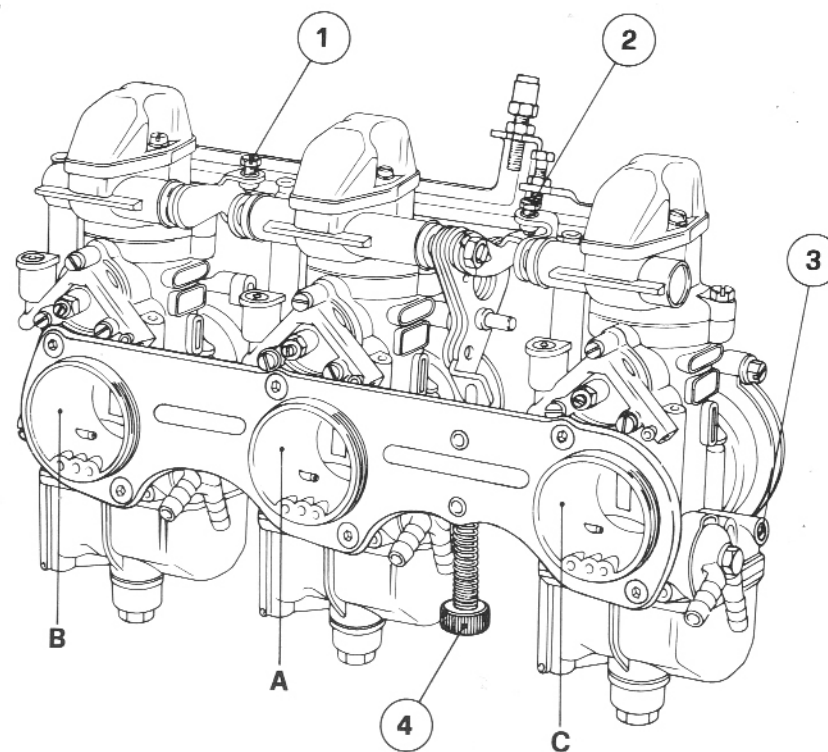


CARBURETOR SYNCHRONISATION AND IDLE ADJUSTMENT

- 1) - Connect a three-column mercury manometer to the carburetor inlets on the starter passages in place of the blanking plugs fitted.
- 2) - Unscrew the three carburetor mixture screws (3) one full turn from the fully-closed position.
- 3) - Start the engine and leave it running until normal running temperature is reached; then adjust the idle screw (4) to set the engine idling speed to around 1100 rpm.
- 4) - Using the screws (1) and (2), align the mercury column levels of carburetors B and C with the level of carburetor A; unscrewing raises the column level and vice versa.
- 5) - Set the running of each cylinder as evenly as possible by adjusting the mixture screws (3), bearing in mind that unscrewing them enriches the mixture and vice versa.
- 6) - Now repeat the alignment operation and, using screw (4), bring the idle speed to around 1100rpm or the desired speed.

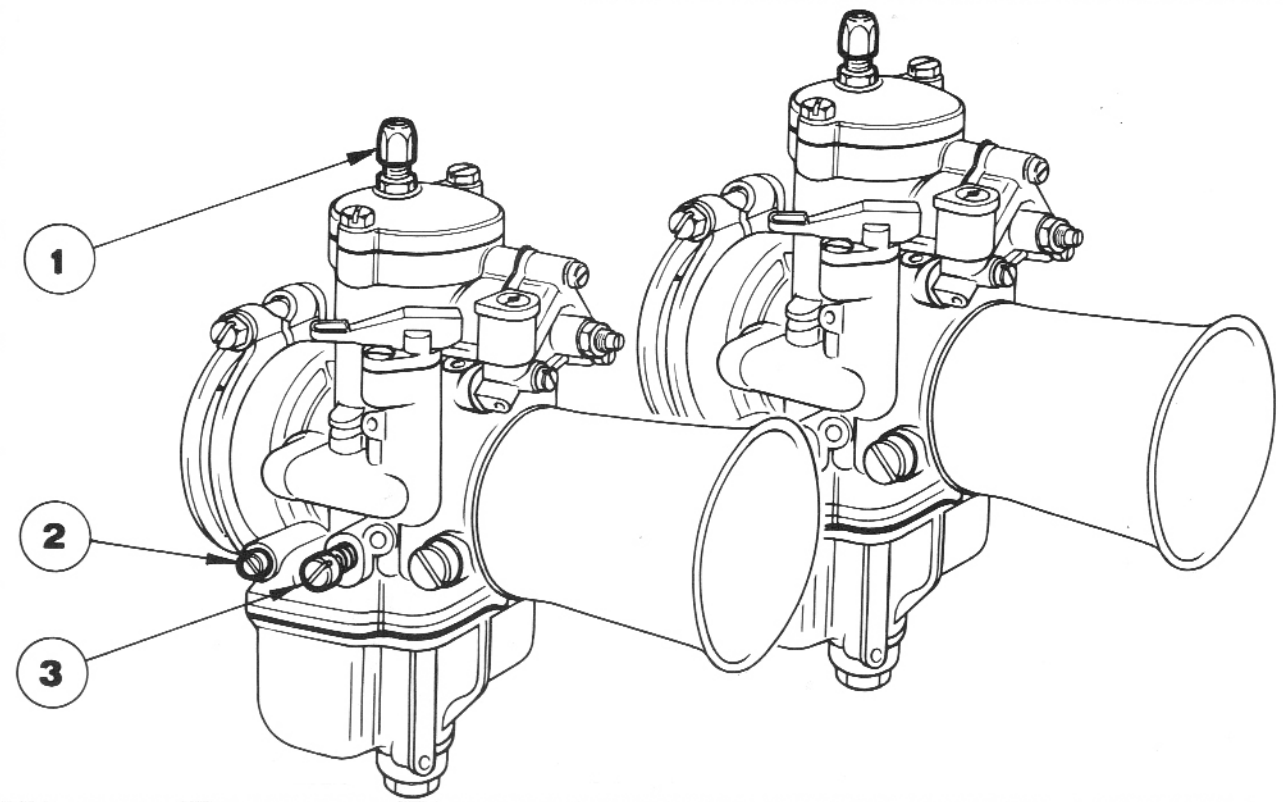
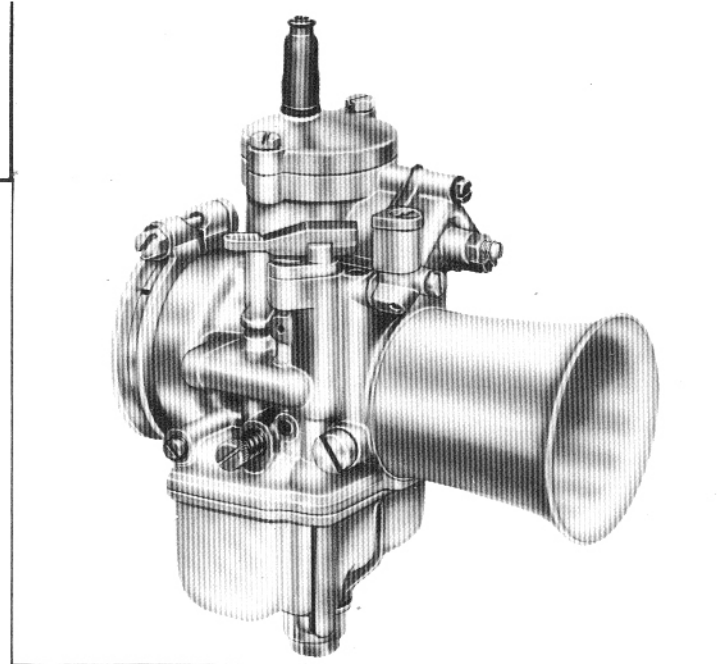
Where the carburetor assembly has been removed for maintenance or cleaning, before refitting, roughly synchronise the carburetor throttles using screws (1), (2) and (4) so that all the slides are open about 1 mm.

After refitting, carry out the six adjustment steps above.



CARBURETOR SYNCHRONISATION AND IDLE ADJUSTMENT

- 1) - Check that full throttle at the twistgrip gives full throttle on each carburetor and that, with the throttle twistgrip fully closed, there is about 1mm of play on each cable. If not, slacken the cable - adjuster locknuts and readjust the play.
- 2) - Unscrew each idle-mixture screw (2) one full turn from the fully - closed position.
- 3) - Connect the air - intake pipes to a mercury manometer using the plugged tappings. (In some installations, these connections are on the carburetor).
- 4) - Start the engine and allow it to reach normal running temperature; then set the idle speed with screw (3) just enough to keep the engine running.
- 5) - Using the slide screws (3), align the mercury column levels; unscrewing raises the level and vice versa.
- 6) - Now adjust the idle-mixture screws (2) to obtain the best running; remember that unscrewing them enriches the mixture and vice versa.
- 7) - Realign the mercury levels by adjusting screws (3), at the same time lowering the idle speed to that desired.
- 8) - Check and, if necessary, readjust the throttle cable play.
- 9) - Now set the engine running at around 2000rpm with the twistgrip and realign the mercury levels by moving the cable adjusters (1); unscrewing them will lower the mercury level and vice versa.
- 10) - Stop the engine, having locked the cable adjuster - screws (1), and remove the manometer replacing the blanking - plugs.



4 - stroke road and competition engines with
 cylinder capacities between 250 cc. and 500 cc.

1) FEATURES

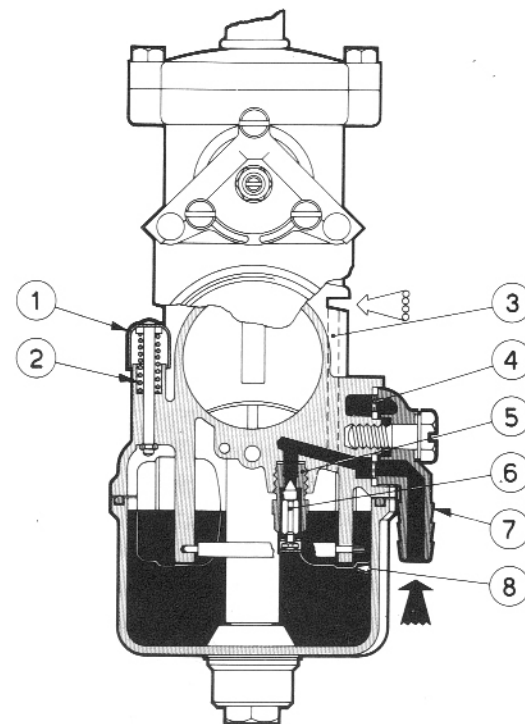
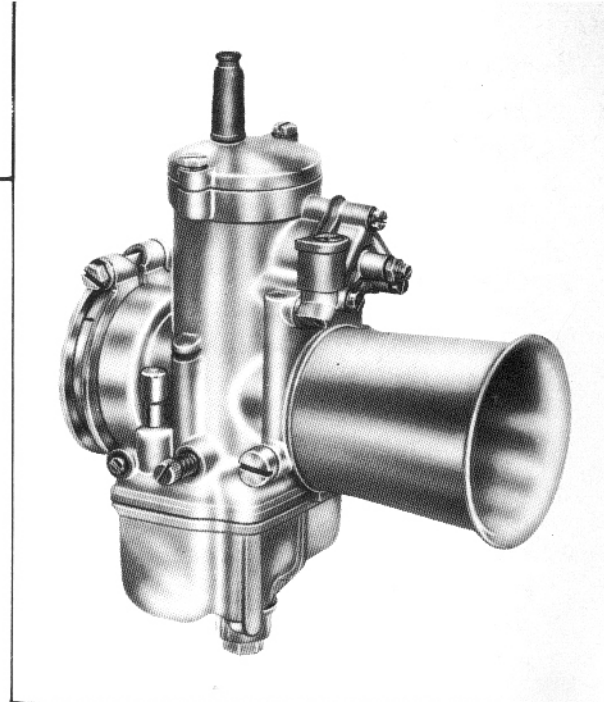
- Monobloc body with sidedraft barrel and mounting up to 40 degrees from horizontal possible.
- Choke sizes: 38 - and 40 - mm.
- Cylindrical throttle slide.
- Central constant-level float-chamber with double float.
- Flooding-plunger starting device.
- Idle system with central idle-jet and mixture adjustment-screw.
- Tapered-needle mechanical mixture control.
- Mechanical diaphragm accelerator pump with valves and pump jet.
- Cuff mounting with insulating sleeve from 48 mm to 45 mm.
- Fitting of inlet couplings or trumpets possible.

The series is produced in both left- and right-handed forms with the adjusting screws on the left or right; looking from the air inlet side, suffix D signifies right- and S left-hand.

2) OPERATION

a - Starting

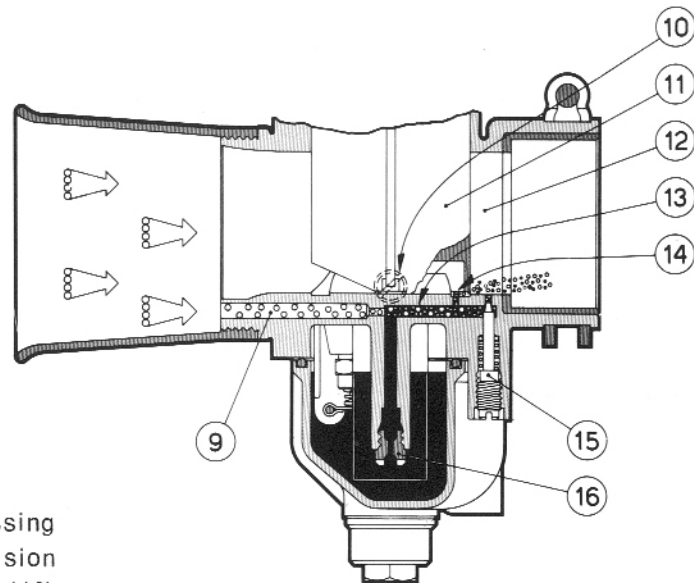
Fuel reaching the union (7) passes through the filter (4) to the valve seat (5) where the needle (6) fixed to the float (8), controls the flow into the float-chamber. The float (8) opens and closes the needle-valve (6) thereby maintaining a constant level. The chamber is vented to atmosphere through passage (3). Holding the plunger (1) down against the spring (2), holds the float (8) down and needle-valve open, allowing petrol to rise above the normal level, making starting easier.



b - Idling

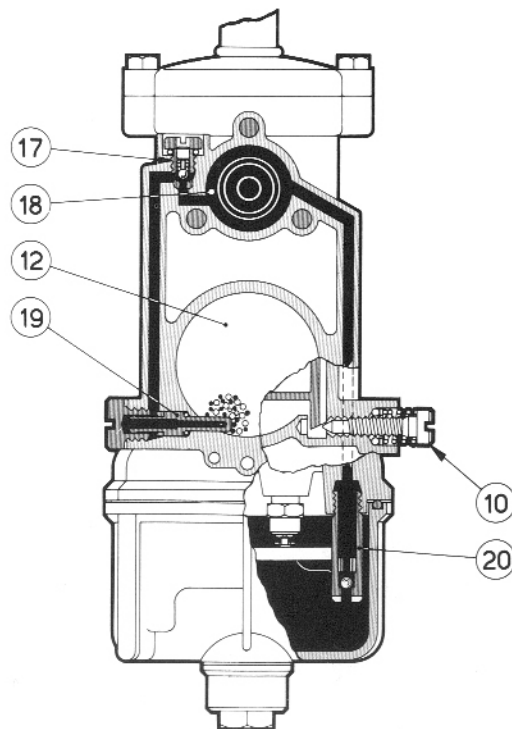
Fuel from the float-chamber is regulated through the idle jet (16) and mixes with air from the inlet (9) and, passing along the duct (13), reaches the mixture screw (15). From here, the controlled amount of mixture flows into the main barrel (12) below the throttle slide (11).

The screw (10) adjusts the slide position at idle.



c - Progression

On first opening the slide (11), in passing from idling to full-throttle, emulsion mixture also reaches the main barrel (12) via the progression holes (14).

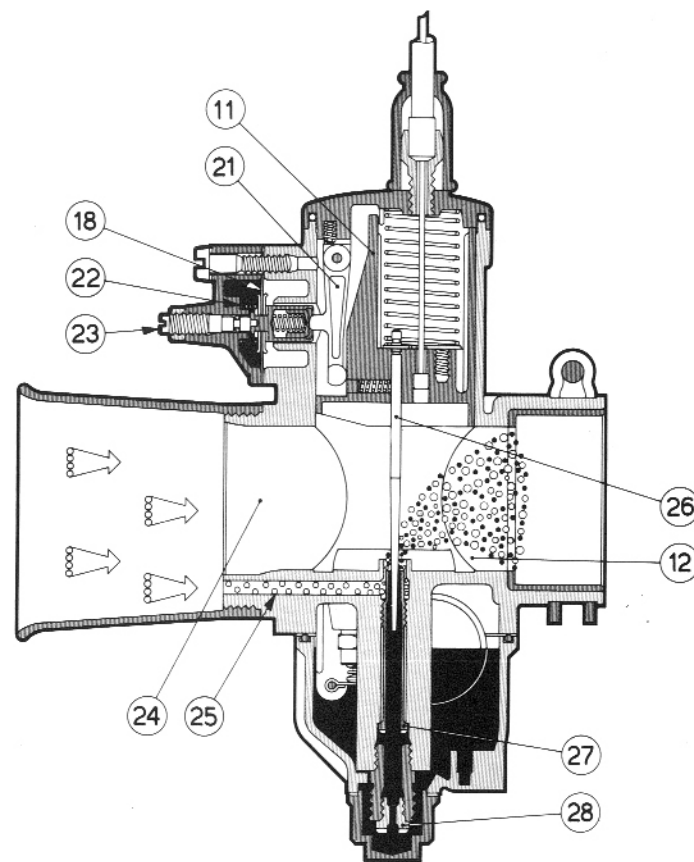


d - Acceleration

When the throttle slide (11) is opened, lever (21), operated by a cam in the slide, acts directly on the diaphragm (18), opposed by the spring (22).

The diaphragm (18) then pumps petrol through the discharge valve (17) and the pump jet (19) into the main barrel (12).

On closing the throttle (11), the spring (22) returns the diaphragm (18) to its original position drawing fuel from the float chamber through the inlet valve (20). The adjusting-screw (23) varies the pump delivery.



e - Full-throttle

With the throttle slide (11) open, fuel from the float chamber, regulated by the main jet (28), passes into the emulsion-tube (27) where it mixes with air from the inlet (25); it then flows, regulated by the tapered-needle (26), into the main barrel (12) mixing with air from the main inlet (24).

3) ADJUSTMENT

a - Idling

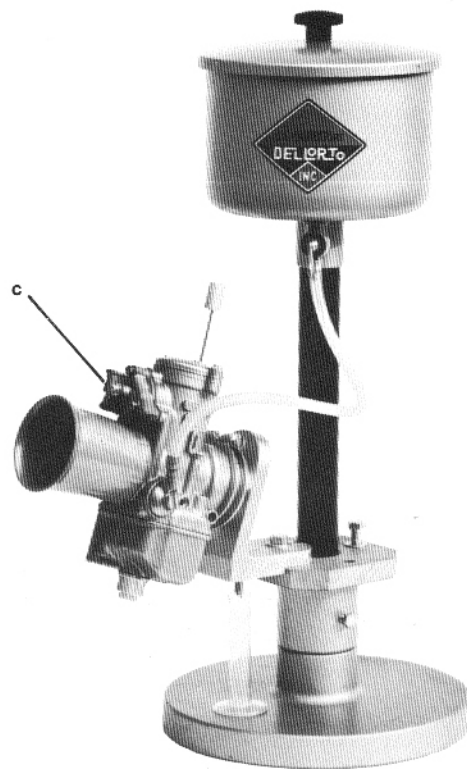
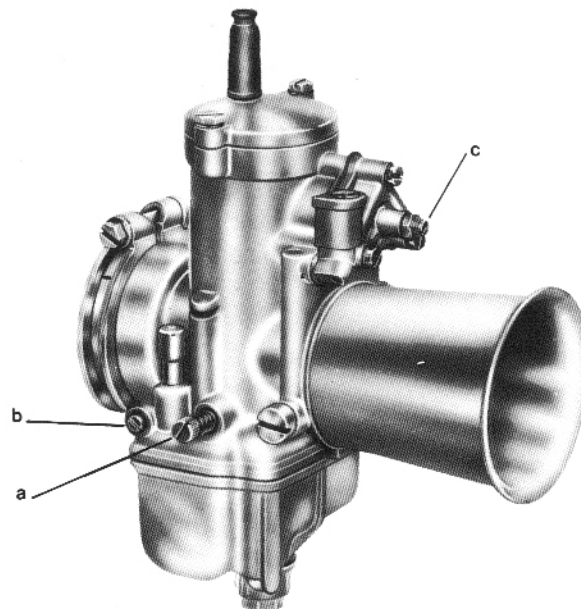
The idle should always be set with the engine hot, screwing the slide screw (a) to obtain a slightly-higher idle speed. Then adjust the mixture screw (b) to obtain the most even running, progressively lowering the idle speed with screw (a) until the desired idle speed is obtained.

b - Accelerator pump

The pump delivery can be checked by fixing the carburetor on a special support connected to a petrol reservoir, so that all the fuel pumped out can be measured in a calibrated measure. Open and close the throttle completely twenty times, with a few seconds in between, and check that the volume of fuel collected corresponds with the specification.

If not, using the adjuster-screw (c), reset the delivery, checking it each time, until the desired setting is obtained; remember that unscrewing it increases fuel delivery and vice versa.

Finally, lock the adjuster locknut.



c - Intermediate operation

From idle to around one-fifth throttle, the slide must be changed in order to vary the mixture strength; a slide with a smaller cutaway will enrich the mixture and vice versa.

From about one-fifth throttle to four-fifths, the mixture is mainly dependent on the position of the tapered-needle held in the slide by a circlip.

To vary the mixture, the needle can be raised or lowered by fixing the circlip in a different notch; lowering it weakens the mixture and vice versa.

d - Full-throttle

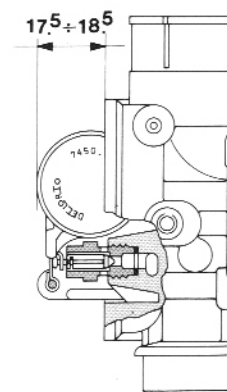
At full throttle, the carburation is dependent mainly on the size of the main jet fitted.

To change the mixture, larger or smaller main jets should be substituted, larger main jets making the mixture richer and vice versa.

e - Float level

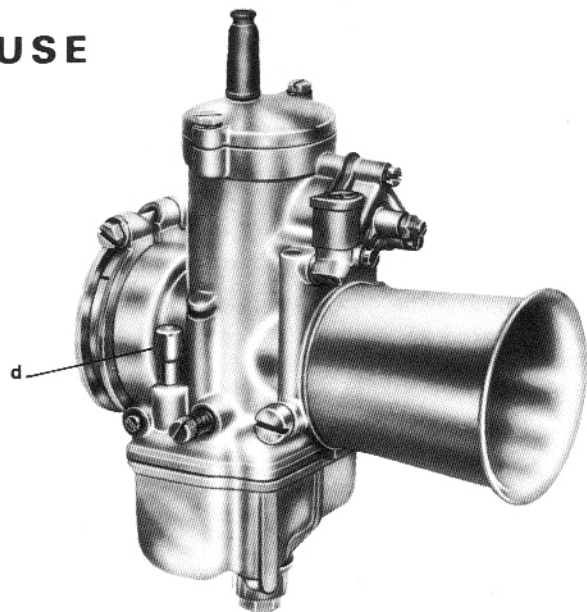
Check that the float is undamaged and has the weight marked on it; it should swivel freely on its hinge-pin.

Hold the carburetor body as shown so that the float arm is in light contact with the needle and the valve is closed. In this position, check that each half-float is the correct distance from the edge of the body. If not, bend the arms slightly to obtain the correct setting.



float-pin vertical

4) USE



5) MAINTENANCE

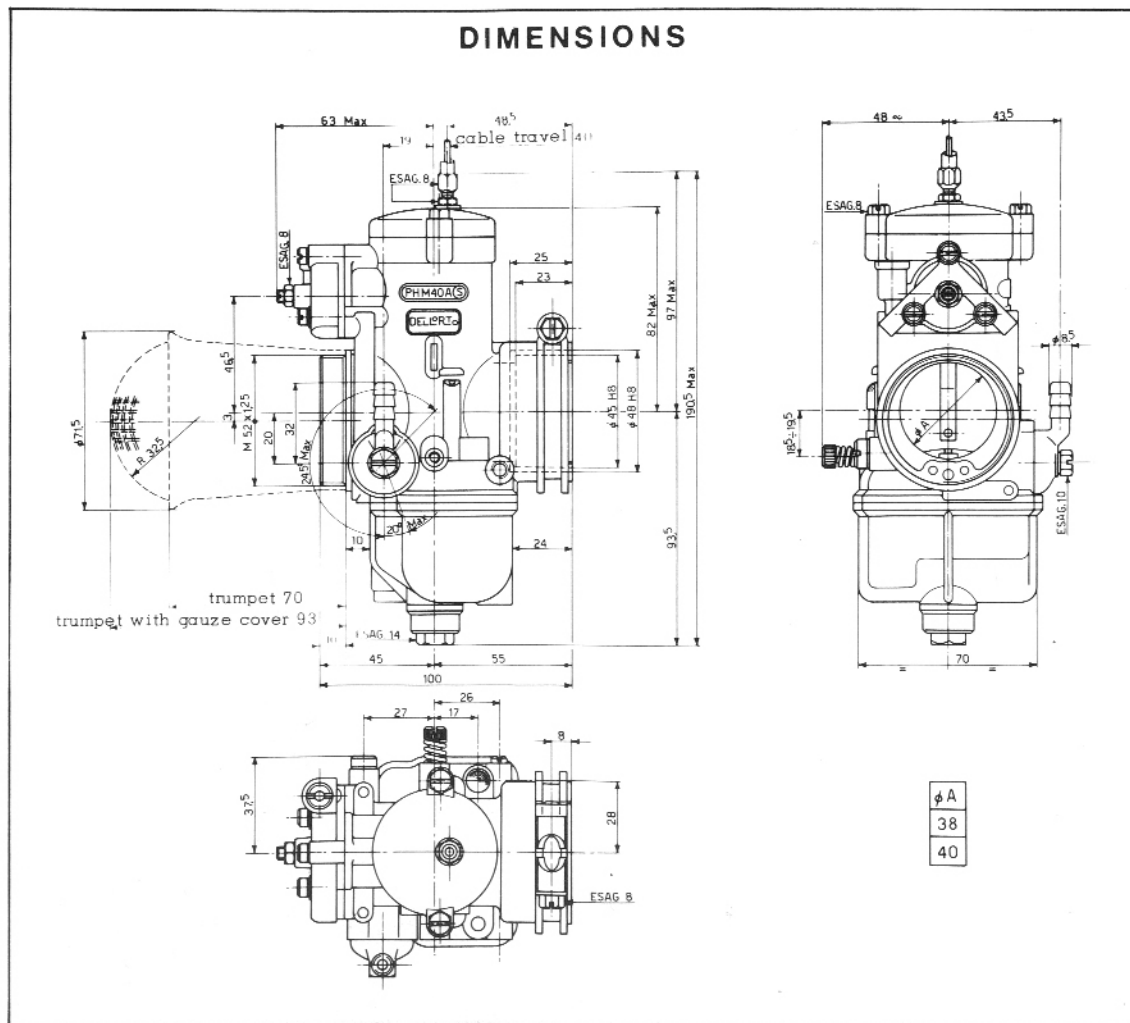
To keep the carburetor in good working-order, you should occasionally carry out the following procedure:

- Clean the carburetor thoroughly, washing and drying all the parts including the body and especially the drillings and jets, etc.
- Check the components for wear, in particular the tapered-needle, the needle-jet, needle-valve and pump diaphragm; make sure the float weight is as marked and, before reassembling, check that the needle-valve does seal against its seat properly.
- Refit the carburetor having replaced any damaged or worn parts with new ones of the same size, etc.

Starting

To start from cold, the flooding-plunger should be pressed five or six times, lightly opening the throttle.

In extremely cold conditions, it is advisable to open the throttle completely once or twice, so that the accelerator pump can squirt extra fuel into the inlet, making starting easier.



1) FEATURES

- Monobloc body with sidedraft barrel and mounting up to 40 degrees from the horizontal possible.
- Choke sizes: 38 - and 40 - mm.
- Cylindrical throttle slide.
- Central constant-level float-chamber with double float.
- Independent starting circuit.
- Idle system with central idle-jet and mixture adjustment screw.
- Tapered-needle mechanical mixture control.
- Mechanical diaphragm accelerator pump with valves and pump jet.
- Cuff mounting with insulating sleeve from 48 mm. to 45 mm.
- Provision for trumpets or inlet couplings.

The series is produced in both left- and right-handed forms with the adjusting-screws on the left or right; looking from the air inlet side, suffix D signifies right, and S left hand.

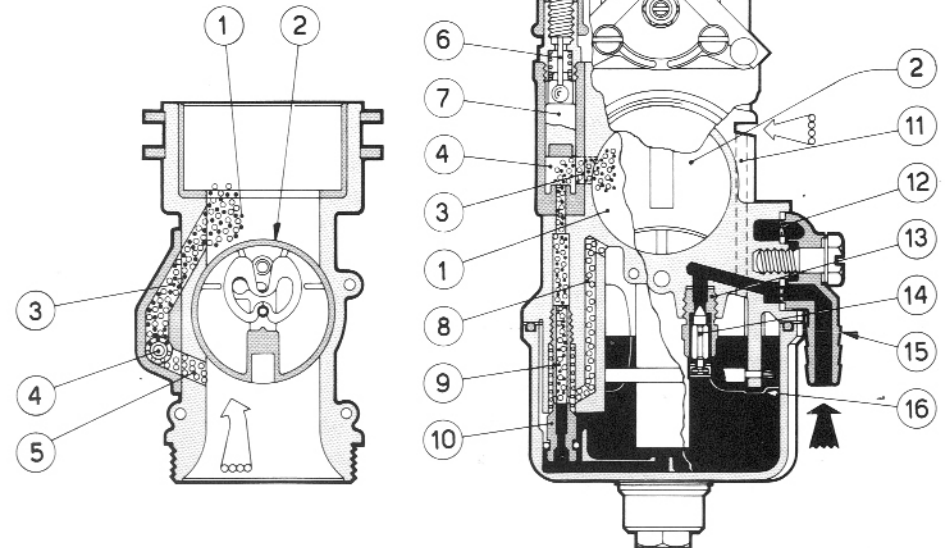
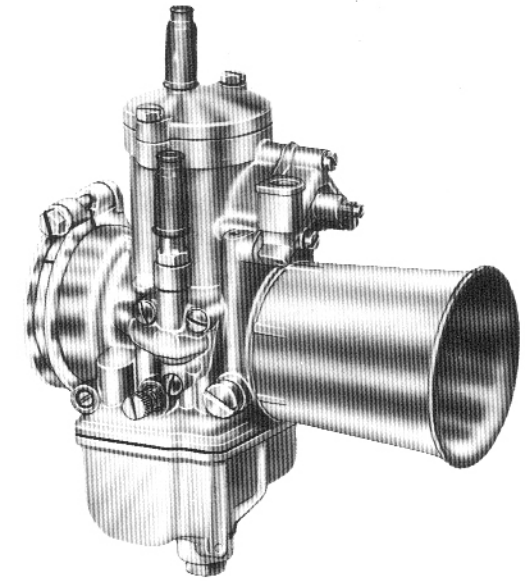
2) OPERATION

a - Starting

Fuel reaching the union (15), passes through the filter (12) to the valve seat (13) where the needle (14) fixed to the float (16) controls the flow into the float chamber. The float (16) opens and closes the needle-valve (14) thereby maintaining a constant fuel level.

The chamber is vented to atmosphere through passage (11).

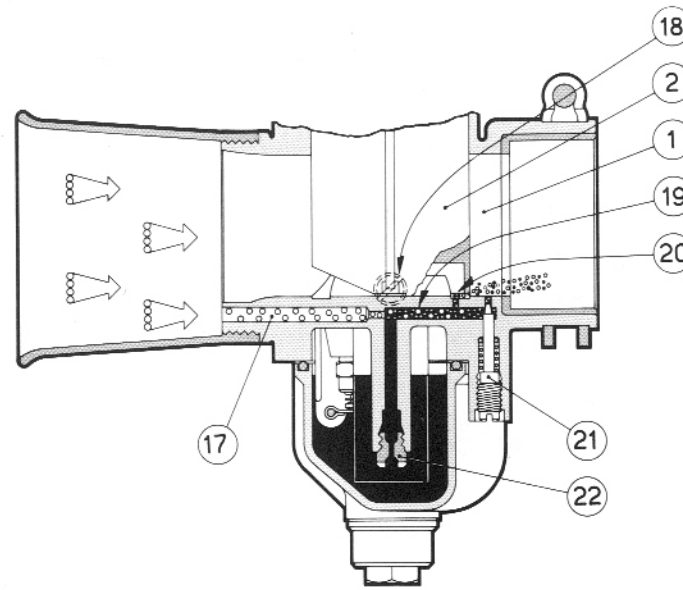
With the starting valve (7) opened by the cable (6) and lever control, petrol regulated by the starter jet (10) passes into the emulsion tube (9) where it mixes with air from inlet (8); it then flows into the valve chamber (4) mixing with air from the inlet (5) and, passing along the channel (3), is finally emitted below the throttle slide (2) in the main barrel. (1).



b - Idling

Fuel from the float-chamber is regulated through the idle-jet (22) and mixes with air from the inlet (17) and, passing along the channel (19), reaches the mixture screw (21); from here, the controlled amount of mixture flows into the main barrel (1) below the throttle slide (2).

The screw (18) adjusts the position of the throttle slide at idle.



c - Progression

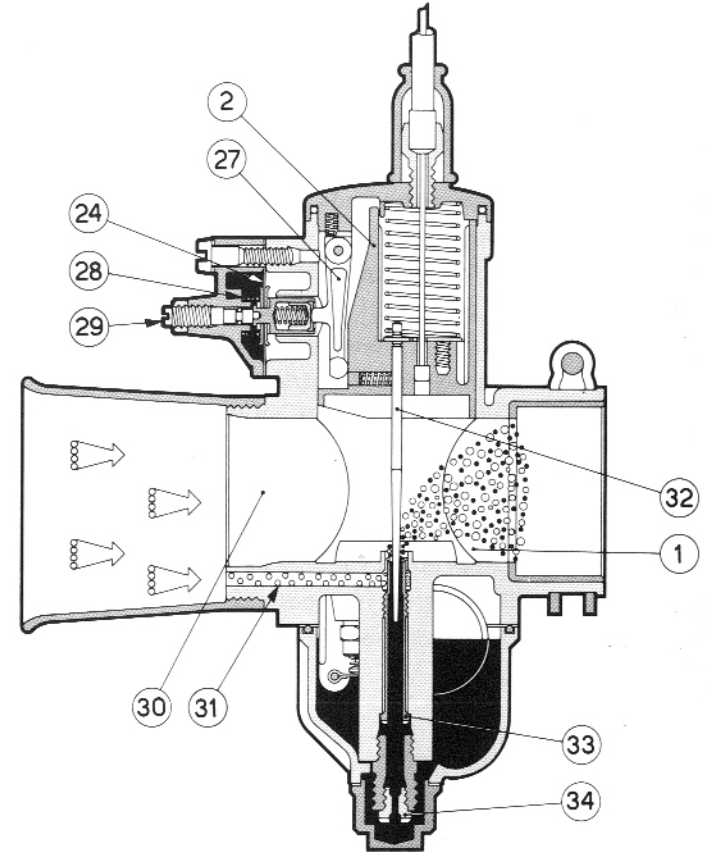
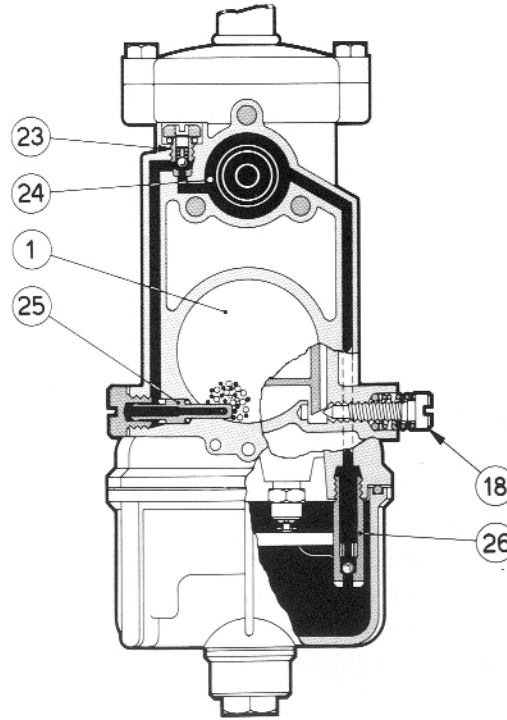
On first opening the slide (2), in passing from idle to full throttle, emulsion mixture also reaches the main barrel (1) via the progression holes (20).

d - Acceleration

When the throttle slide (2) is opened, lever (27), operated by a cam in the slide, acts directly on the diaphragm (24), backed by the spring (28).

The diaphragm (24) then pumps petrol through the discharge valve (23) and the pump-jet (25) into the main barrel (1).

On closing the throttle (2), the spring (28) returns the diaphragm (24) to its original position, drawing fuel from the float chamber through the inlet valve (26). The adjusting-screw (29) varies the pump delivery.



e - Full - throttle

With the throttle-slide (2) open, fuel from the float-chamber, regulated by the main-jet (34), passes into the emulsion tube (33) where it mixes with air from the inlet (31), it then flows, regulated by the tapered-needle (32), into the main barrel (1) mixing with air coming through the main inlet (24).

3) ADJUSTMENT

a - Idling

The idle should always be set with the engine hot, screwing in the slide screw (a) to obtain a slightly-higher idle speed. Then adjust the mixture screw (b) to obtain the most even running, progressively lowering the idle speed with screw (a) until the desired speed is obtained.

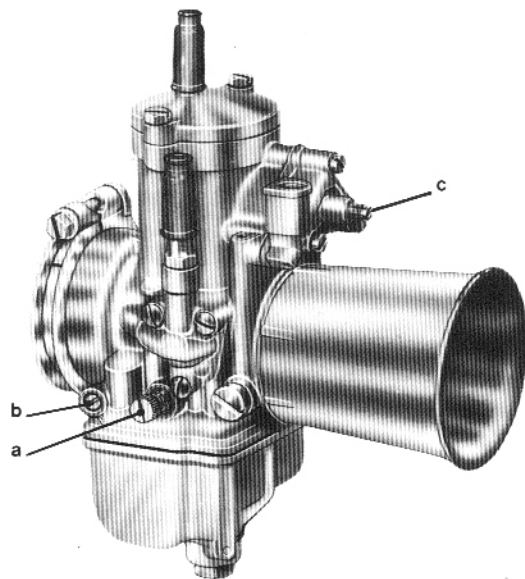
b - Accelerator pump

The pump delivery can be checked by fixing the carburetor on to a special support connected to a petrol reservoir, so that all the fuel from the pump can be measured in a calibrated measure.

Open and close the throttle completely twenty times, with a few seconds in between, and check the volume of fuel collected corresponds with the engine specification.

If not, using the adjuster-screw (c), reset the delivery checking it each time, until the desired setting is obtained; remember that unscrewing it increases fuel delivery and vice versa.

Finally, tighten the adjuster lock-nut.



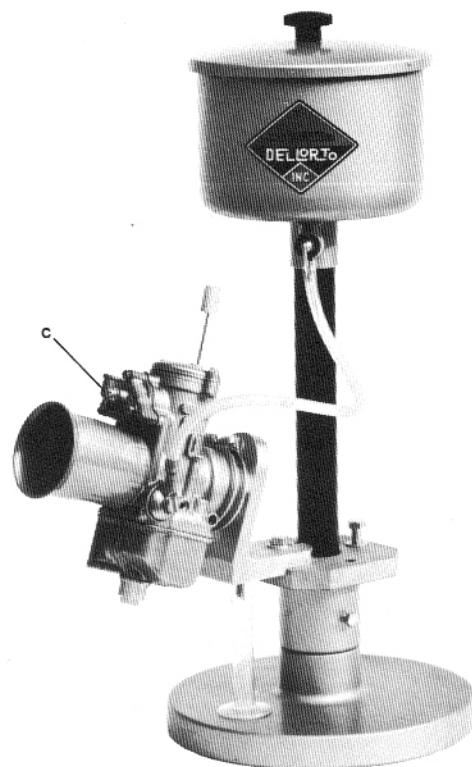
c - Intermediate operation

From idle to around one-fifth throttle, the slide must be changed in order to vary the mixture strength; a slide with a smaller cutaway will enrich the mixture and vice versa.

From about one-fifth throttle to four-fifths, the mixture strength depends mainly on the position of the tapered-needle which is held in the slide by a circlip. To vary the mixture, the needle can be raised or lowered by fixing this circlip in a different notch in the needle; lowering it weakens the mixture and vice versa.

d - Full throttle

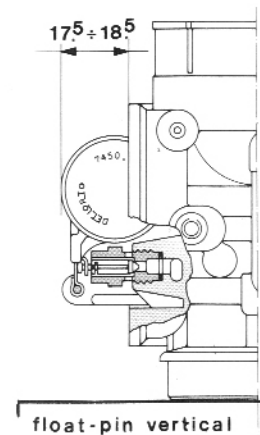
At full throttle, the carburation is dependent mainly on the size of main jet fitted. To change the mixture strength, larger or smaller main jets should be substituted, larger main jets making the mixture richer and vice versa.



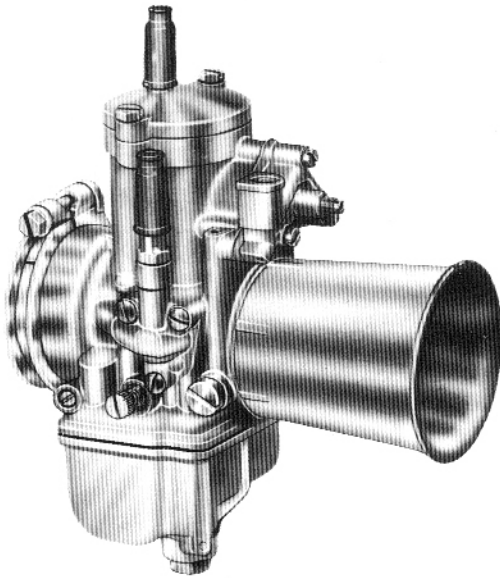
e - Float level

Check that the float is undamaged and has the weight marked on it; it should swivel freely on its higen-pin.

Hold the carburetor as shown so that the float-arm is in light contact with the needle and the valve is closed. In this position, check that each half-float is the correct distance from the edge of the body. If not, bend the arms slightly to obtain the correct setting.



4) USE



Starting

To start from cold, close the throttle completely and fully open the starting valve by operating the control lever.

In slightly-warmer weather, open the throttle a little.

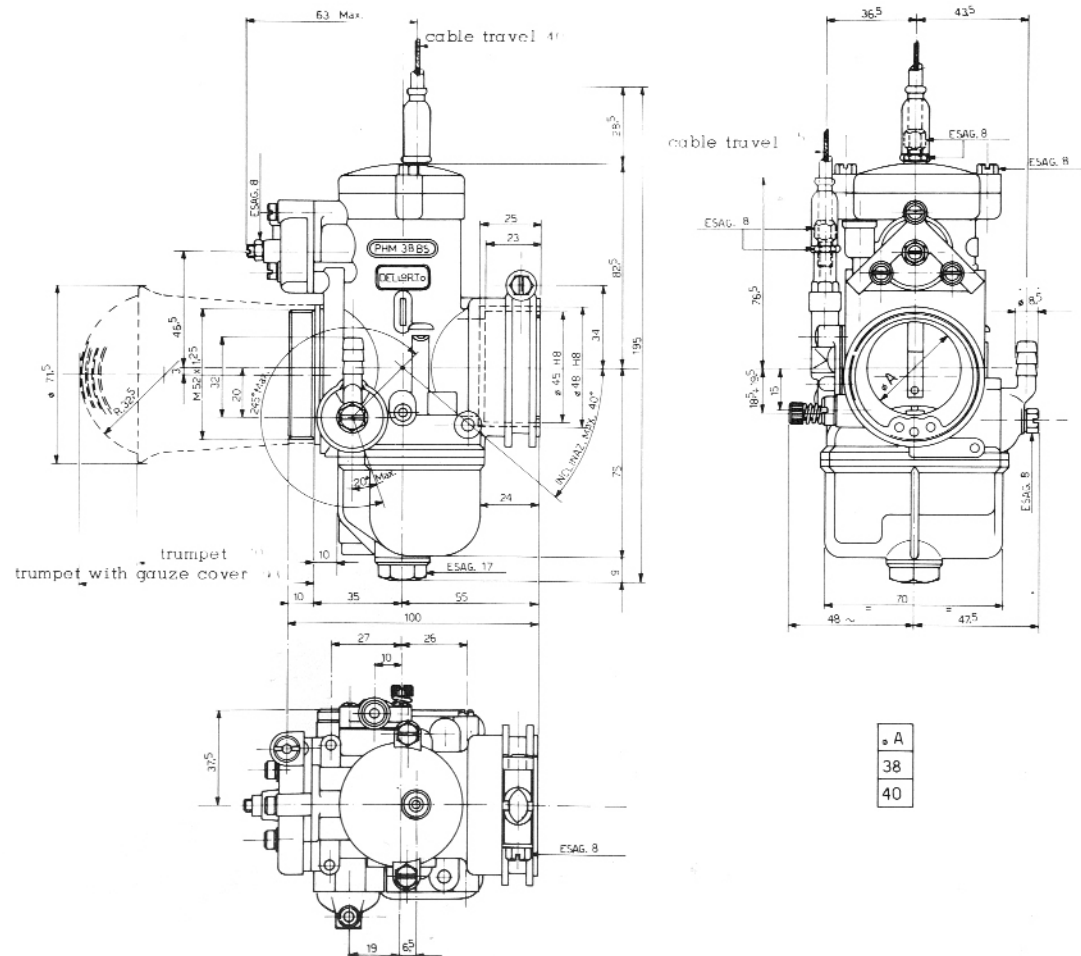
When the engine reaches normal running temperature, close the starting valve or the now-unnecessary fuel enrichment will upset the running.

5) MAINTENANCE

To keep the carburetor in good working-order, you should occasionally carry out the following procedure:

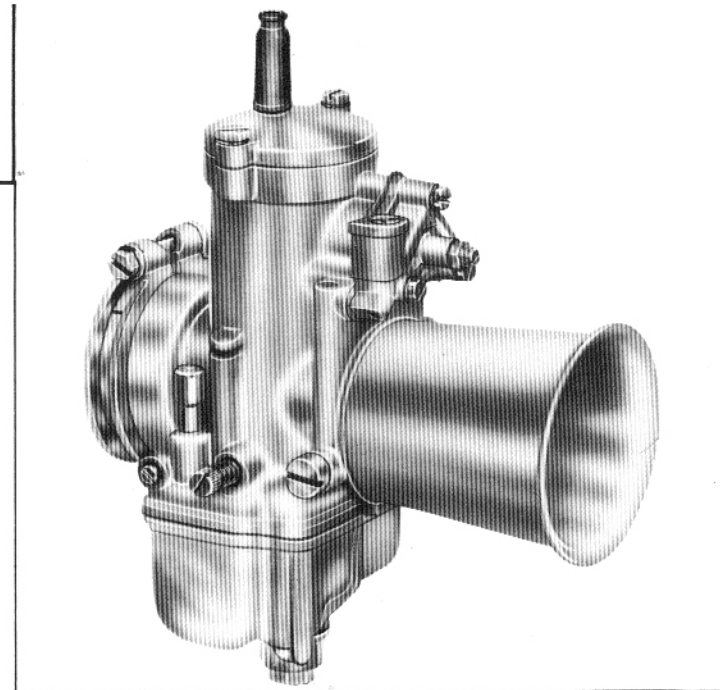
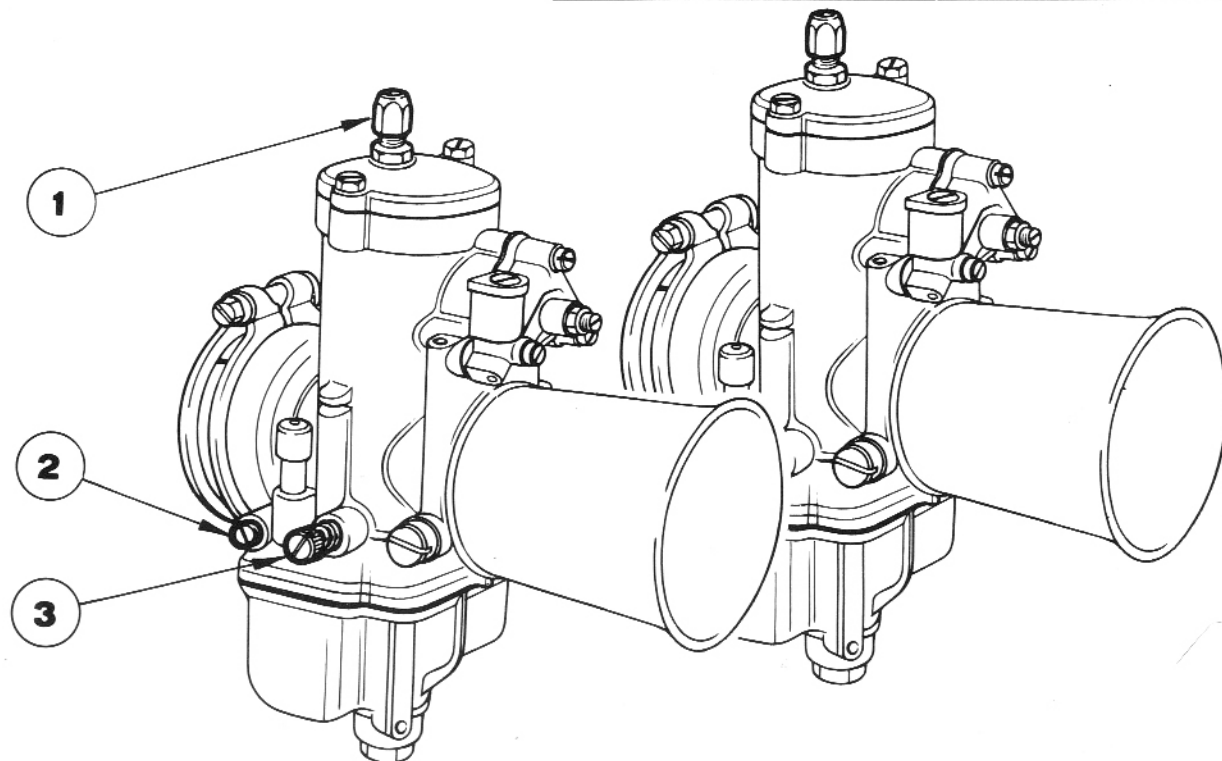
- Clean the carburetor thoroughly, washing and drying all the parts including the body and especially the drillings and jets, etc.
- Check all the components for wear, in particular the tapered-needle, the needle-jet, needle-valve and pump diaphragm; make sure the float weight is as marked and, before reassembling, check that the needle-valve does seal against its seat properly.
- Refit the carburetor having replaced any damaged or worn parts with new ones of the same size, etc.

DIMENSIONS



CARBURETOR SYNCHRONISATION AND IDLE ADJUSTMENT

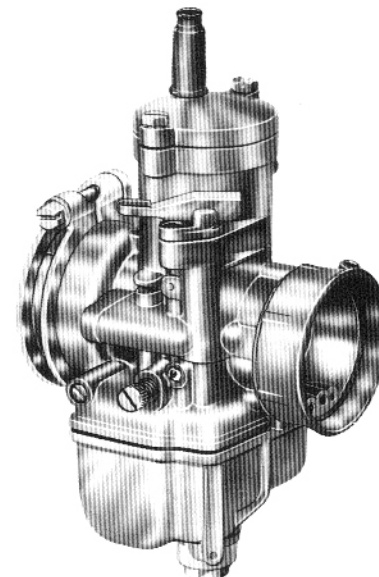
- 1) - Check that full throttle at the twistgrip gives full throttle on each carburetor and that, with the twistgrip fully closed, there is about 1mm of play on each cable. If not, adjust the play by slackening the locknut and turning screw (1).
- 2) - Unscrew each carburetor mixture screw (2) one full turn from the fully-closed position.
- 3) - Connect each carburetor air intake to a mercury manometer using the tapped and plugged connections on the inlets.
- 4) - Start the engine and leave it running to attain normal running temperature; then set the slide screws (3) just enough to keep the engine idling.
- 5) - Now, readjust the slide screws (3) to align the levels of the mercury columns; unscrewing raises the level and vice versa.
- 6) - Adjust the idle mixture with screws (2) to obtain the most even running; unscrewing enriches the mixture and vice versa.
- 7) - Realign the mercury levels again with screws (3), at the same time adjusting the idle speed to the normal level.
- 8) - Check and, if necessary, reset the throttle cable free play.
- 9) - Now set the engine speed to around 2000rpm with the twistgrip and then realign the mercury levels, this time, by adjusting the cable screws (1), unscrewing lowers the mercury level and vice versa.
- 10) - Stop the engine, lock the nuts on the cable adjusters and remove the mercury manometer, refitting the plugs in the air inlet tappings.



1) FEATURES

- Monobloc body with sidedraft barrel and mounting possible up to 40 degrees from the horizontal.
- Choke sizes of: 30 - 32 - 34 - 36 mm.
- Cylindrical throttle slide.
- Central constant - level float chamber and double float.
- Independent starting circuit.
- Idle system with central idle - jet and idle - mixture screw.
- Tapered - needle mechanical mixture control.
- Cuff mounting with insulating sleeve from 45 mm to 42 mm for PHB...A models and from 44 mm for the PHB...B models with flexible mountings.

The series are made in both left- and right - hand forms, with left or right adjusting screws; looking from the air inlet side, suffix D signifies right - hand construction, S left - hand.



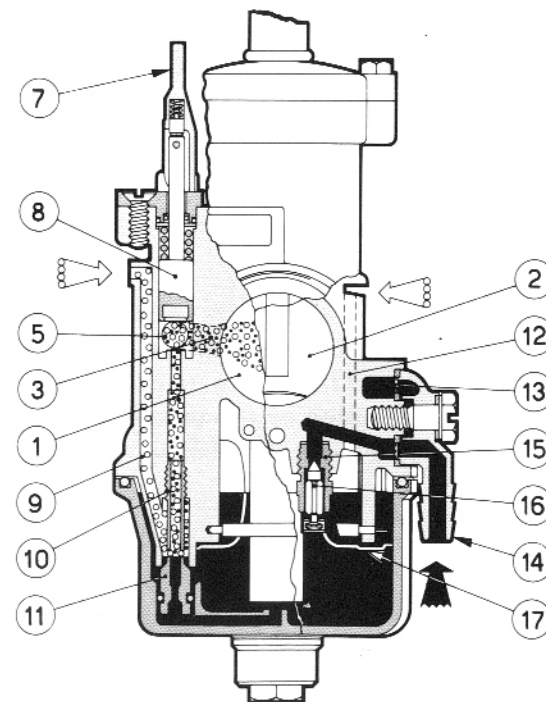
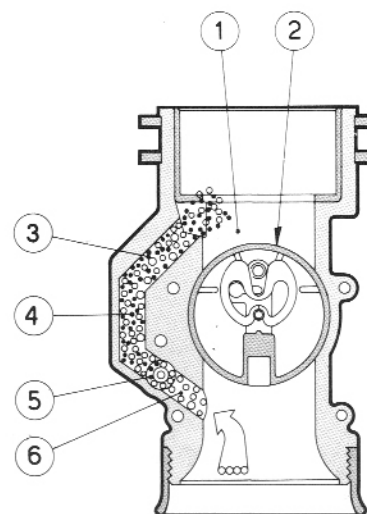
2) OPERATION

a - Starting

Fuel reaching the union (14) passes through the filter (13) to the seat (15) where the needle (16) fixed to the float (17) controls the flow into the float chamber thereby maintaining a constant level. The chamber is vented to atmosphere via channel (12).

The float (17) controls the opening and closing of the needle valve (16).

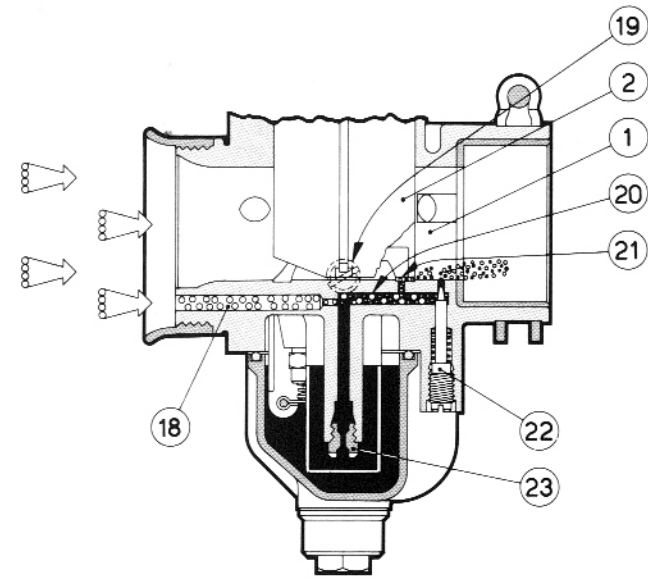
With the starting - valve (8) open, by means of the lever (7), the fuel regulated by the starter - jet (11) passes into the emulsion tube (10) where it mixes with air from channel (9); it then flows into the valve chamber (5) finally mixing with air from the drilling (6) and, passing along the canals (3) and (4), is emitted below the throttle slide (2) into the main barrel (1).



b - Idling

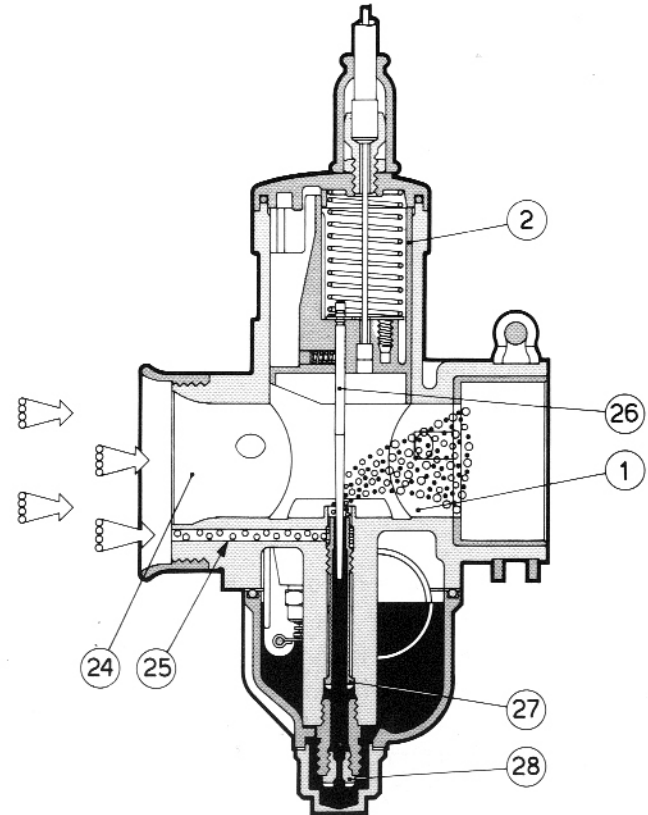
Fuel from the float chamber is regulated through the idle-jet (23); it mixes with air coming through the inlet (18) and flows along the passage (20) to the idle-mixture adjustment screw (22); from there, the controlled amount of mixture flows into the main barrel (1) below the throttle slide (2).

Screw (19) regulates the slide opening at idle.



c - Progression

On first opening the throttle (2) ie. in passing from idle to full-throttle, emulsion mixture also reaches the main barrel (1) through the progression holes (21).



d - Full-throttle

With the throttle slide (2) open, fuel from the float chamber is regulated through the main jet (28) and passes into the emulsion tube (27) where it mixes with air from inlet (25); it then flows, regulated by the tapered-needle (26) into the main barrel (1) where it mixes with air coming through the main inlet (24).

3) ADJUSTMENT

a - Idling

The idle should always be set with the engine hot, after screwing in the slide screw (a) to obtain a slightly-higher idling speed. Then adjust the mixture screw (b) to obtain the most even running, progressively lowering the idle speed with screw (a) until the normal setting is reached.

b - Intermediate operation

From idle to around one-fifth throttle, the slide must be changed to vary the mixture strength; a slide with a smaller cutaway will enrich the mixture here and vice versa.

From about one-fifth throttle to about four-fifths, the mixture is dependent mainly on the tapered needle held in the slide by a circlip. To vary the mixture strength, the needle can be raised or lowered by fixing this circlip into another notch in the needle; lowering it weakens the mixture and vice versa.

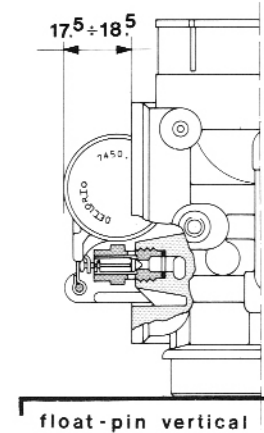
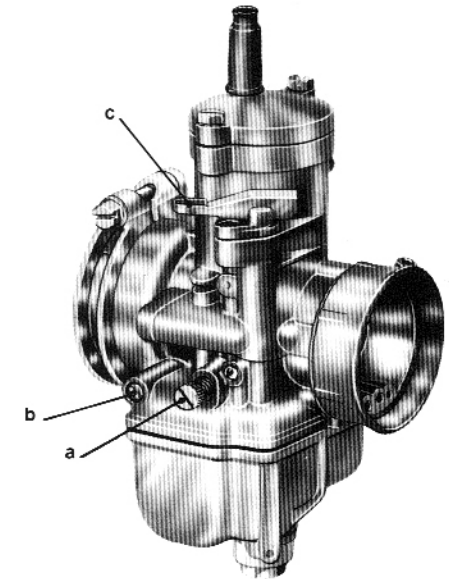
c - Full throttle

At full throttle, the mixture depends mainly on the size of the main jet; so, to change the mixture strength, alternate size main jets should be substituted; larger main jets enrich the mixture and vice versa.

d - Float level

Check that the float has the specified weight, is undamaged and swivels freely on its hinge-pin. The weight is marked on the float.

Hold the carburetor body as shown so that the float arm is in light contact with the needle and the valve is closed. In this position, check that the two half-floats are the correct distance from the edge of the body. If not, gently bend the arms on each side to obtain the correct setting.



4) USE

a - Starting

Starting from cold, keep the slide shut and open the starter valve by pulling up the lever (c) into a vertical position.

Where a cable control is fitted, fully open the handlebar lever.

In slightly warmer weather, hold the throttle open a little.

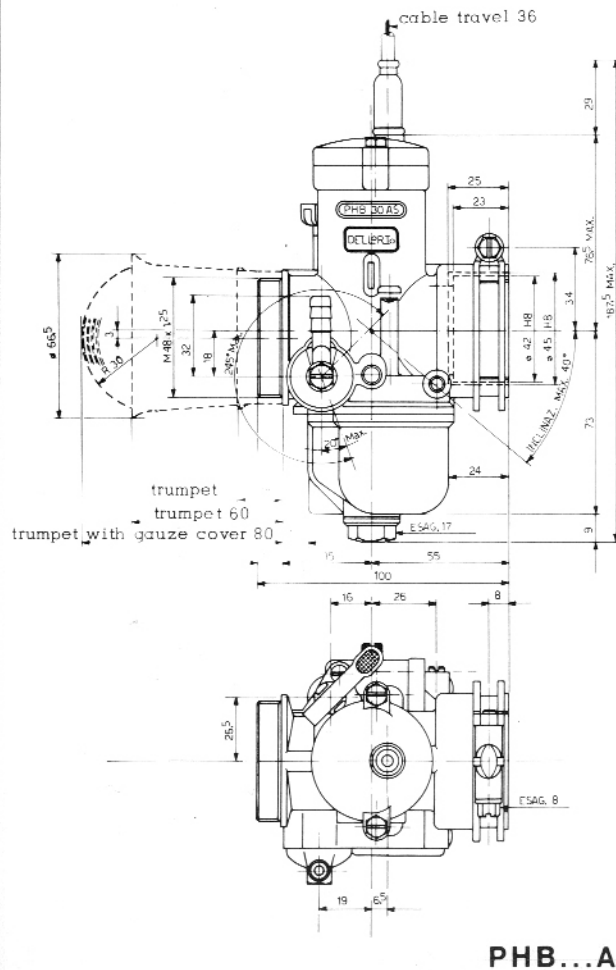
When the engine has reached normal running temperature, close the starting valve or the now-unnecessary mixture enrichment will upset the running.

5) MAINTENANCE

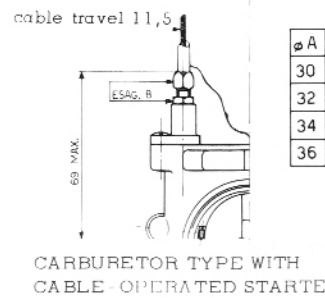
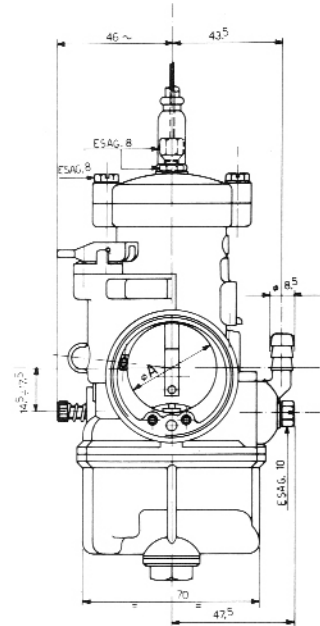
Keep the carburetor in good working order by occasionally carrying out the following operations:

- Clean the carburetor thoroughly by dismantling, washing and drying all the parts including the body and especially the drillings and jets, etc.
- Check the components for wear, particularly the tapered-needle, needle-jet, and needle-valve; make sure the float weight is as marked and, before reassembling, check that the needle-valve seals properly against its seat.
- Refit the carburetor having replaced any damaged or worn parts with new ones of the same size, etc.

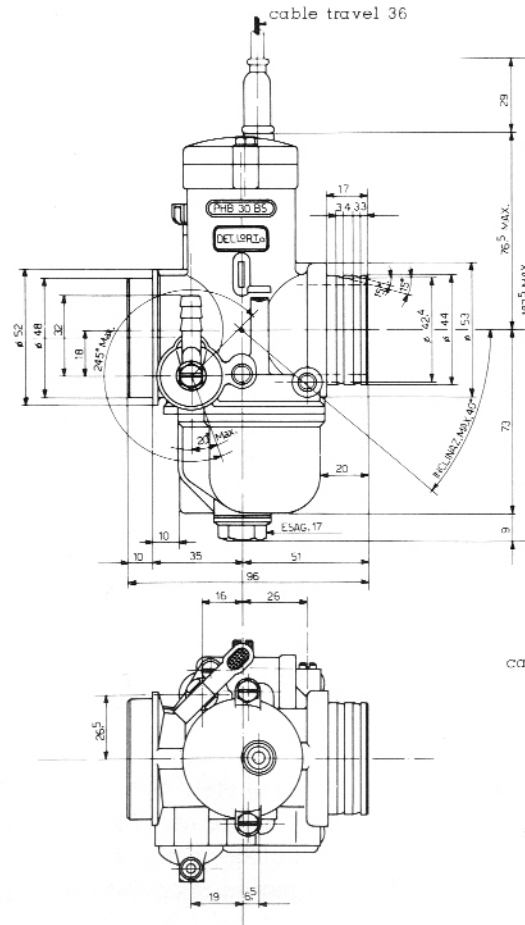
DIMENSIONS



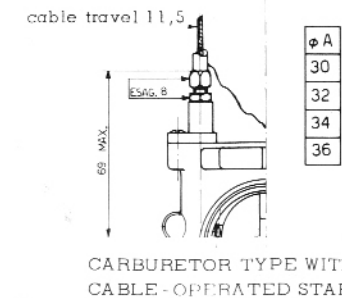
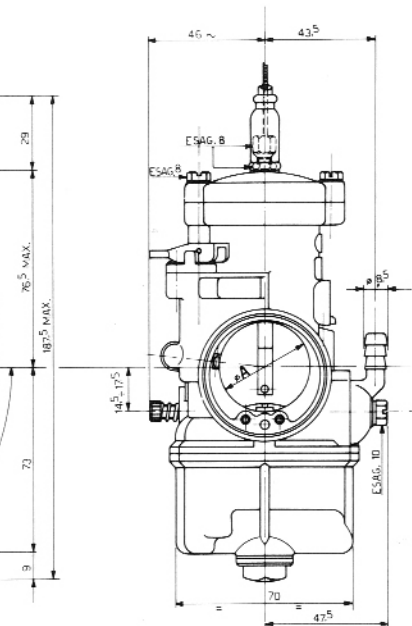
PHB...A



CARBURETOR TYPE WITH CABLE-OPERATED STARTER



PHB...B



CARBURETOR TYPE WITH CABLE-OPERATED STARTER