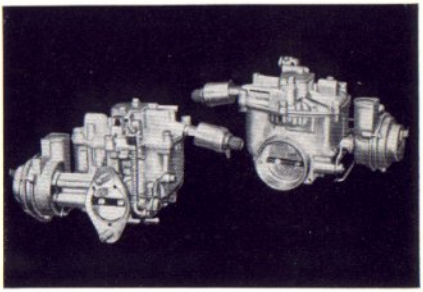
LOOK
LISTEN
DO IT BETTER

SOLEX 32 PHN CARBURETOR

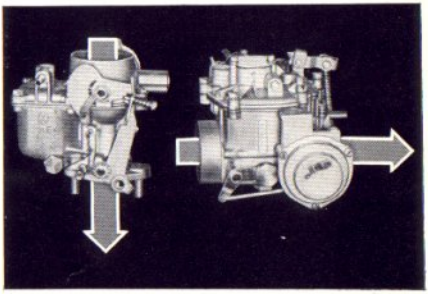
Slide Series № 16/17

SOLEX 32 PHN CARBURETOR

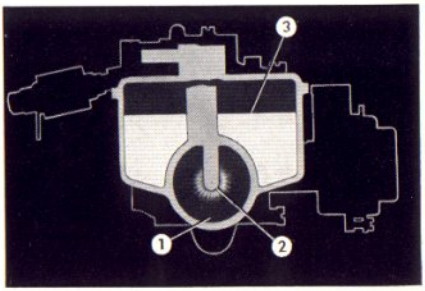
16/2 This is the 32 PHN carburetor from the Volkswagen 1500. You will immediately notice a considerable difference when comparing this carburetor with the carburetor from the Volkswagen 1200.

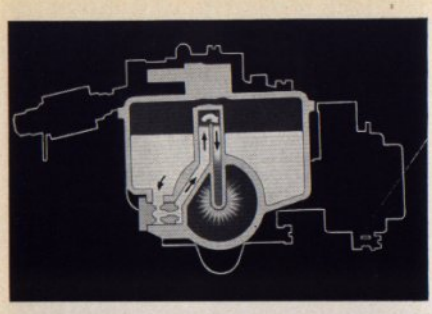


16/3 Here is the basic difference. On the left is the 28 PICT down draft carburetor. The air and fuel/air mixture flows vertically downwards. On the right is the 32 PHN side draft carburetor from the Volkswagen 1500. The same process takes place horizontally.

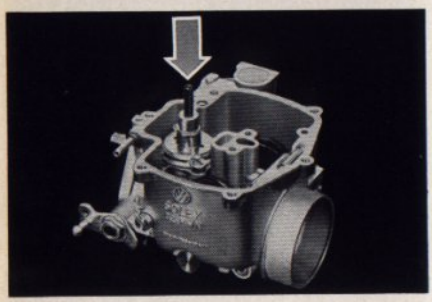


16/4 The process shown in the previous picture can be seen better here. The induction passage (1) is at the bottom of the housing and this means that the discharge opening (2) is below the fuel level (3).

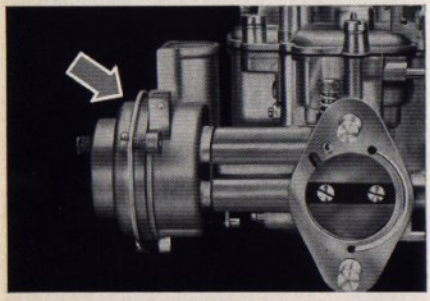




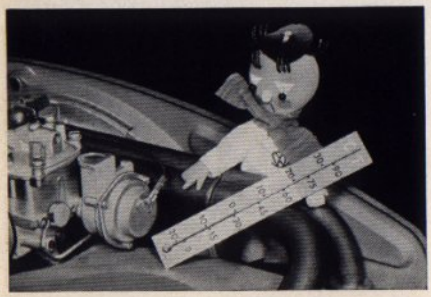
16/5 The fuel flows through the main jet on the lower left and then passes upwards as shown by the black arrows in the light field. The fuel then flows downwards to the discharge openings in the choke tube as shown by the white arrow in the center.



16/6 This carburetor also has an accelerator pump arranged vertically in the carburetor body. These are the distinguishing features of the side draft carburetor. We shall now go on to study the 32 PHN carburetor in detail, starting with the automatic choke then going on to the fuel flow and the carburetor ventilation.

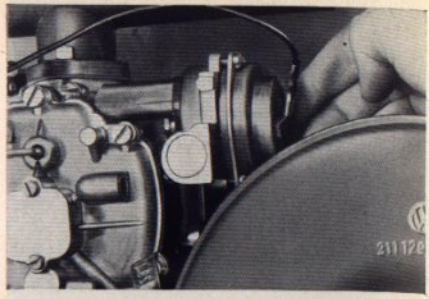


16/7 The automatic choke is located in a special housing which is attached to the carburetor body. You probably already know what the automatic choke does but we shall go over it again this point.

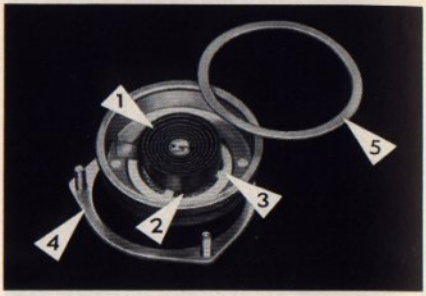


16/8 The automatic choke ensures that the engine starts quickly from cold by closing the choke valve automatically and providing the cold engine with the necessary rich mixture. At the same time the idling speed is increased slightly. As the engine warms up, the automatic choke opens the choke valve and weakens the mixture. The engine speed slowly decreases to the proper idling speed.

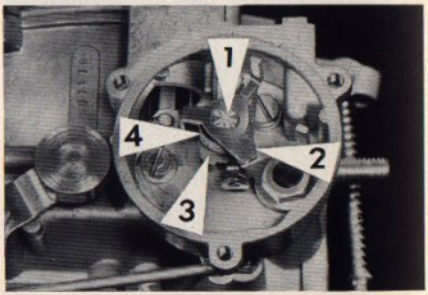
16/9 The automatic choke normally gives very little trouble. If an engine starts badly or does not start at all, check if the automatic choke cover is warm. If the heat cannot be felt after the ignition has been switched on for about one minute, the cover must be removed.



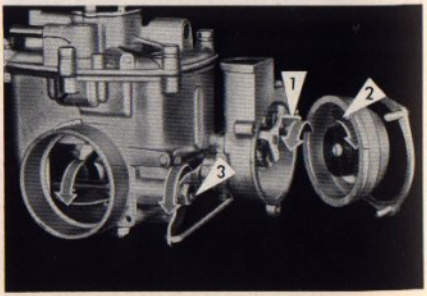
16/10 In the cover you can see the bi-metal coil (1) the heater element (2) and the ceramic insert (3). If one of these parts is damaged the cover must be renewed. The cover is secured to the carburetor body with the retaining ring (4). Do not forget the gasket (5).

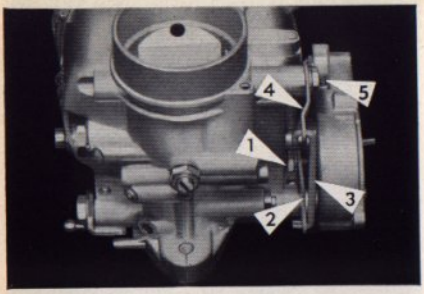


16/11 A glance inside the choke control housing shows the other parts of the automatic choke. You can see the intermediate spindle (1) on which the operating lever (2), the fast idle cam (3) and the cam return spring (4) are mounted. The intermediate spindle and the fast idle cam must move freely. The parts mentioned cannot be renewed individually.

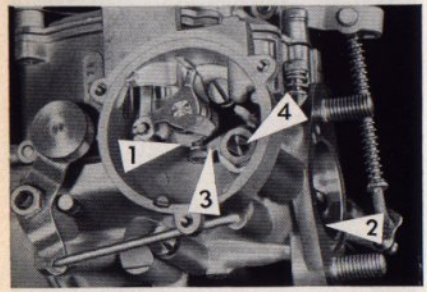


16/12 How does the automatic closing of the choke valve take place. When you look at this picture you will soon understand. At low temperatures the bi-metal coil uncurls and the hooked end (2) turns the operating lever (1) and the intermediate spindle in the direction shown by the arrow. A connecting linkage transmits this movement to the choke valve shaft (3) and closes the choke as shown.

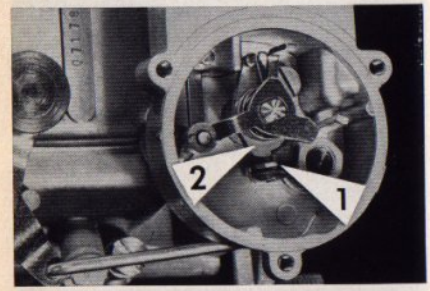




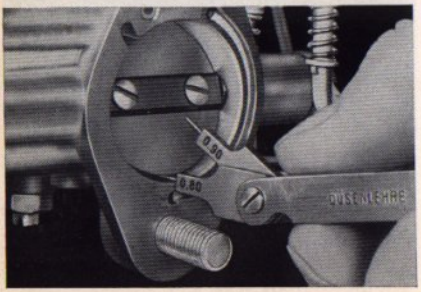
16/13 This linkage is located at the back of the choke control housing. The choke lever (2) on the intermediate spindle (1) transmits the movement via the connecting link (3) and the choke valve lever (4) to the choke valve shaft (5). Of these parts only the choke valve shaft can be replaced.



16/14 As you know, the position of the throttle valve controls the idling speed. The automatic choke must, therefore, also bring the throttle valve into the correct position to suit the operating temperature. The connection between the fast idle cam of the automatic choke (1) and the throttle valve (2) is affected by the stop lever (3) which ist located on the throttle valve shaft (4).

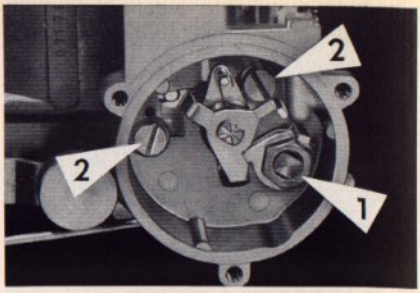


16/15 Here you see the stop screw in the stop lever (1). It contacts the steps of the fast idle cam and holds the throttle valve in the correct position. The setting of the stop screw is locked and must not be altered. In the position shown here the idling speed is at maximum. The stop screw (1) is resting on the highest step on the fast idle cam (2).

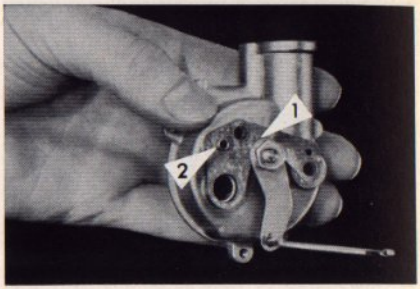


16/16 At the maximum idling speed the throttle valve is opened to a definite angle. You can check this angle by measuring the amount the throttle valve is open with a wire feeler gauge. The amount should be .031 to .035". This check need only be made when the stop lever or the complete choke control housing have been renewed.

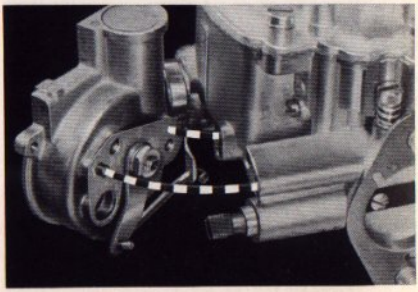
16/17 To renew the stop lever, remove the hexagon nut (1) from the throttle valve shaft. If the choke control housing has to be removed the two screws (2) must be taken out. This operation will very seldom be necessary.



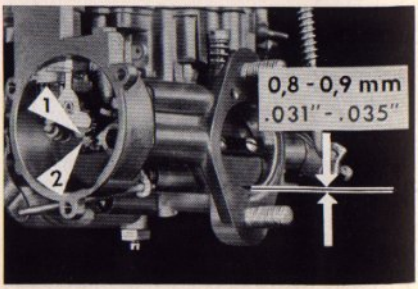
16/18 Check the gasket before installing a new choke control housing. If it is damaged it should be renewed. The gasket must be located between choke lever and choke control housing (1) and seated over the brass sleeve (2).

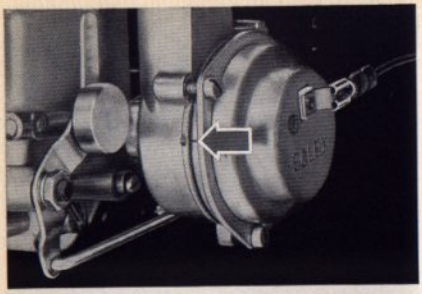


16/19 Hook the connecting link into the eye in the choke valve lever. The black and white lines indicate the connection of the two air passages between the carburetor body and the choke control housing. The front one is the passage to the vacuum piston and the other is for the choke control housing ventilation. These openings must align properly when the two parts are assembled.

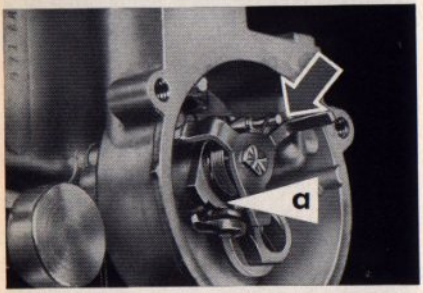


16/20 We said before that the opening angle of the throttle valve must be checked when the stop lever or the choke control housing have been renewed. When making this check, the stop screw (2) must be on the highest step of the fast idle cam (1). Turn the stop screw until the opening measures .031 — .035″ and then seal the screw with paint.

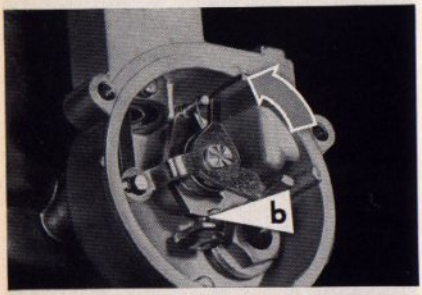




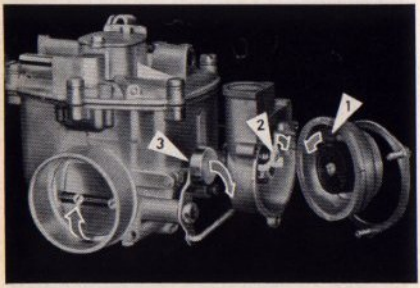
16/21 When installing the cover ensure that the mark on the edge of the cover is in line with the lug on the housing as shown by the arrow.



16/22 In the instruction manual we say that the accelerator pedal must be fully depressed once before attempting to start a cold engine. You should be able to explain the reason for this to every customer. When the engine was stopped it was warm. The stop lever and fast idle cam were in the position shown here (a) and the idling speed was normal. The stop screw is now holding the fast idle cam in position. Even though the bi-metal coil has cooled down the choke valve cannot close because the pin indicated by the arrow prevents the operating lever from rotating.

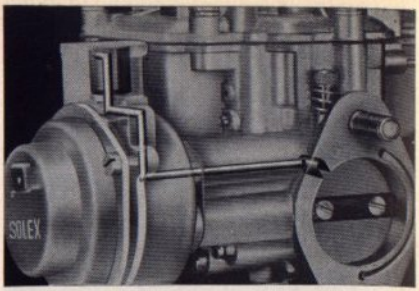


16/23 When the accelerator pedal is depressed, the stop screw releases the fast idle cam. The bi-metal coil turns the operating lever in direction of arrow and closes the choke. When the accelerator pedal is released the stop screw and fast idle cam assume the position shown (b) and the idling speed is at maximum.

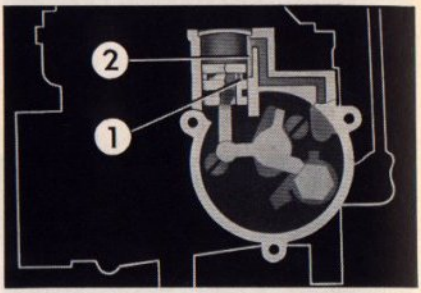


16/24 We have already explained how the bi-metal coil closes the choke when starting a cold engine. As the bi-metal coil is heated up by the heater element it uncoils in the direction of arrow. The hooked end (1), the operating lever and the intermediate spindle (2) follow this movement and the choke valve opens. The opening tendency is assisted by the weighted arm on the choke valve lever (3) and the weight of the upper part of the choke valve.

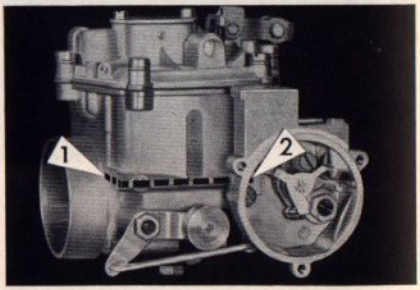
16/25 When driving off with the engine still cold the choke valve commences to open as soon as the engine speed rises slightly due to the strong depression at the throttle valve acting on the vacuum piston. This takes place against the closing force of the partly warmed bi-metal coil. The cylinder for the vacuum piston is connected to the carburetor flange by means of a drilling which can be seen clearly in this picture.



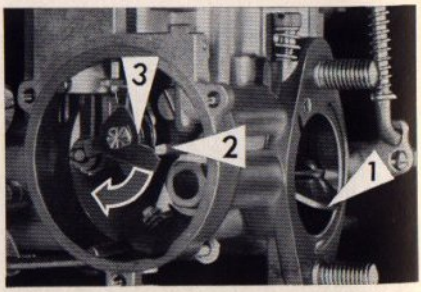
16/26 The vacuum piston can only be moved to the position shown here so that the choke valve is opened slightly. As soon as the upper groove (1) reaches the vertical groove in the cylinder (2) a connection is provided to the interior of the piston and thus to the interior of the choke control housing. The pressure is equalised and the piston ceases to move.

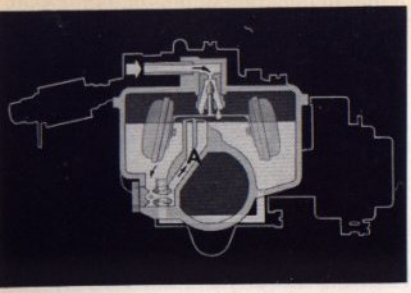


16/27 You will appreciate that the pressure in the choke control housing varies every time the piston moves. The drilling shown here in black and white is provided to equalise this pressure. It begins in the air inlet flange (1) and enters the choke control housing at (2).

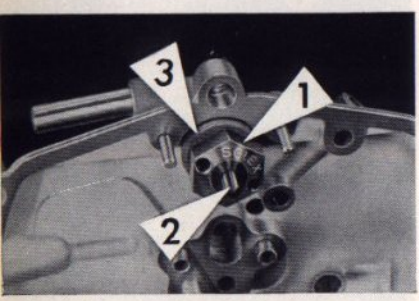


16/28 When driving off with the engine still cold, the throttle valve is often opened past the position shown here (1). When this happens the choke must also open further. The stop lever has an angled arm (2) for this purpose. This turns the operating lever (3) in direction of arrow and moves the choke valve via the intermediate spindle. When the throttle valve is fully open the choke valve is about half open. So much for the automatic choke. We hope that you understand it properly now.

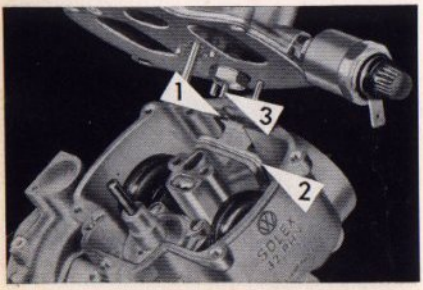




16/29 We shall now go on to explain the fuel circuit. A glance at this picture will show you how the system works. The fuel pump forces the fuel through the inlet pipe to the float needle valve as shown by the white arrow at the top left. When the valve is open the fuel runs into the two float chambers. The arm which connects the two floats closes the valve. The float chambers are connected by a balance drilling so that the fuel level is always the same in both chambers. This drilling can be seen at the bottom of the body. The fuel passes from the float chambers through the main jet shown at bottom left and up to the point marked A. Please note this point A because later on we shall follow the route the fuel takes from this point onwards.

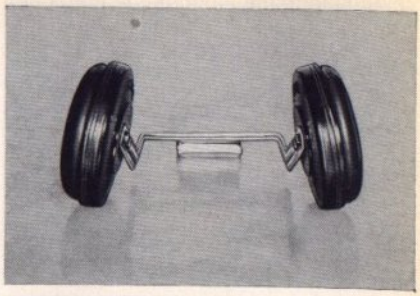


16/30 These are the actual parts on the carburetor which you have just seen in diagram form. The float needle valve (1) is located in the carburetor cover. If the needle valve (2) sticks or does not close properly, either to little or too much fuel will flow. This upsets the formation of the mixture and makes the engine run badly. The needle valve must always move easily and should be cleaned with compressed air. Ensure that the gasket (3) is seated properly.

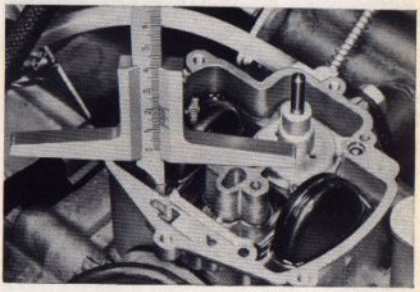


16/31 The float is located in the body wall by means of a pin (1). The two floats are connected by an arm (2) which also moves the needle valve (3) upwards to close the valve.

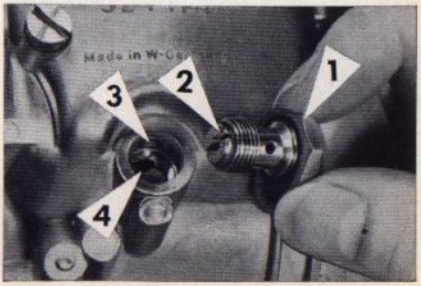
16/32 Before installation, check that the float arm is not bent by laying it on a flat plate as shown here. The float arm must lie firmly on the plate and not rock when pressed anywhere. Also check that the floats are at roughly the same angle. Alterations can be made by bending the arm carefully. Shake the floats about several times. If they are leaking and contain fuel you will hear it. Lay the float in the carburetor and check that it does not touch the carburetor wall as it moves up and down.

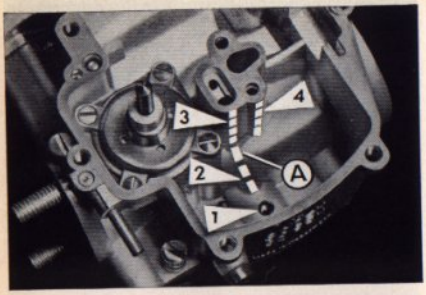


16/33 The fuel level in the carburetor need only be checked in exceptional circumstances. Install the carburetor and start the engine. Take it up to maximum rpm twice for short periods so that the float chambers are filled up to the normal level. Switch the ignition off, remove the carburetor cover and check the fuel level with a depth gauge, without taking the float out. The measurement should be .47 — .55". This measurement increases .059" if you take the float out. The easiest way to alter the fuel level is to change the float needle washer for a thinner or thicker washer or to install a second washer.



16/34 The main jet carrier (1) with the main jet (2) is screwed into the left side of the carburetor. It can be cleaned with compressed air. When installing, check that the washer is seated properly. We said before that the fuel passes from the float chambers to the main jet. Here you can see the drilling (3) through which the fuel flows. It then flows through the drilling (4) to point A as shown in a previous picture.



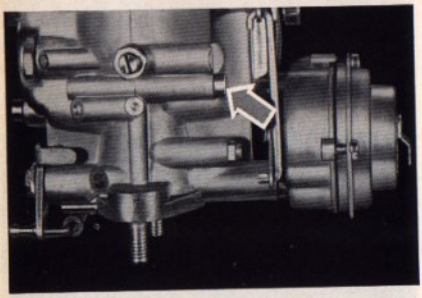


16/35 Here the float has been taken out so that we can see the inside of the carburetor.

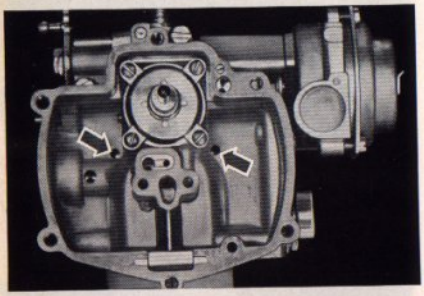
1 - is the drilling to the main jet

2 - the passage up to the point A

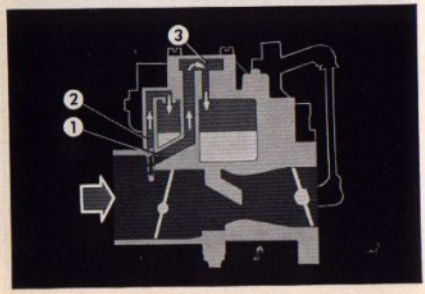
We shall deal with the mixing well (3) and the pilot jet fuel drilling later. You can see that these and three other passages run in a central block.



16/36 Do you remember that we told you that the float chambers are connected by a balance drilling. Here you can see the drilling at the bottom of the carburetor. It runs from the plug indicated by the arrow across to the left.

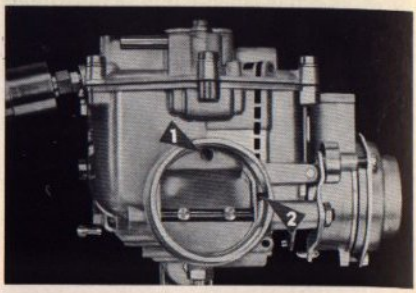


16/37 These are the holes leading to the balance drilling. That will be all about the fuel circuit for the time being. You will learn more about the fuel circuit and the formation of the fuel/air mixture later.

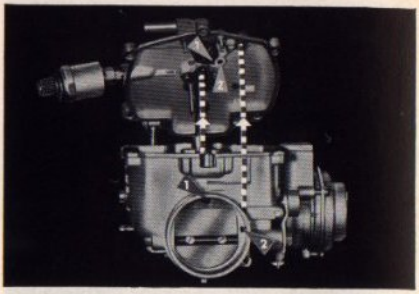


16/38 We shall now explain the carburetor ventilation. Let us look at the system as shown in this picture. The air is grey and the fuel white. The main vent passage (1) commences above the choke valve and runs up at an angle first and then passes through the block in the center of the carburetor to the vent space (3). A second vent passage (2) runs through the carburetor wall up to the cover. From the vent space (3) and the vent passage (2) the air passes into the float chambers.

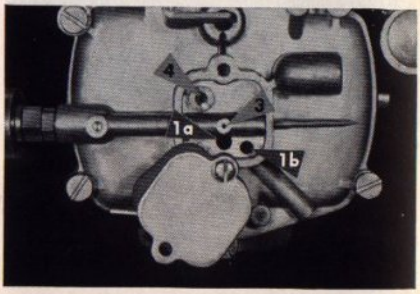
16/39 This is where the two vent passages (1 and 2) start. You can see that passage (1) runs inwards at an angle and passage (2) vertically upwards.



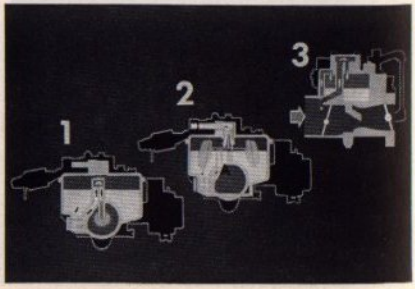
16/40 This picture shows the route of the vent passages clearly. They begin in the intake flange (1 and 2) pass upwards and end at the drillings (upper 1 and 2) inside the carburetor. The gasket between the carburetor body and the cover has been removed.

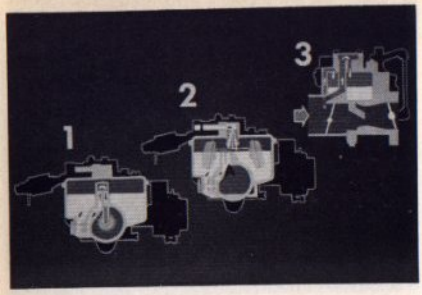


16/41 Here you see the vent space. The cover plate and gasket have been swung to the bottom. You can see the drilling (1 a) in which the main vent passage ends and the drilling (1 b) through which the air passes into the float chamber. In the vent space are the pilot air bleed drilling (3) and the air correction jet (4). These will be explained later.

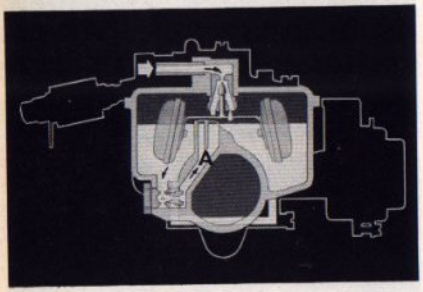


16/42 We will now sum up what we have covered so far. Firstly we mentioned the distinguishing features of the 32 PHN carburetor. Then we explained the automatic choke. Picture 2 will remind you of the fuel circuit. Then once again: Please note point A for future reference. Then finally we showed you how the carburetor is ventilated. Before we go on to describe the idling, normal running, acceleration and power fuel systems, you have earned a short break.





17/1 This is the picture with which we ended the first part of this series on the 32 PHN carburetor of the Volkswagen 1500. Let us recapitulate. First you learned the distinguishing features of the 32 PHN carburetor. Then we discussed the automatic choke, the fuel flow, shown here in picture 2, and the carburetor ventilation.

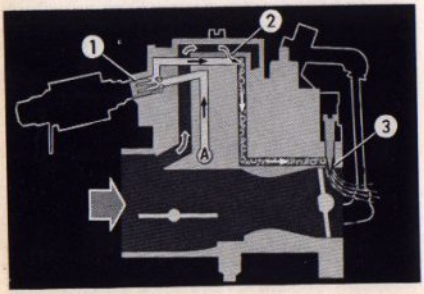


17/2 We shall now glance quickly at the fuel flow before we go on to deal with the idling, normal running, acceleration and power fuel systems. As you will remember, the fuel flows through the needle valve into the carburetor. From the left float chamber it passes into the main jet shown at lower left and rises to point A. From here there are two passages:

on the left is the drilling to the idling system,

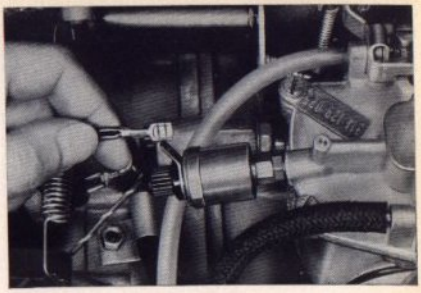
on the right is the drilling to the mixing well.

Up to point A the fuel flow is the same for idling and normal running. We shall now look at the idling system from this point onwards.

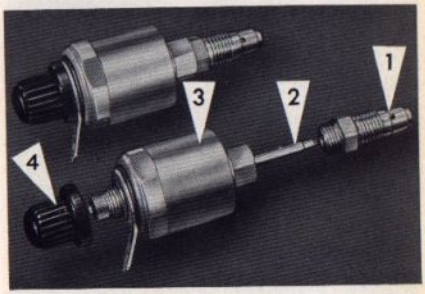


17/3 Here you can see it. At the closed throttle valve on the right in the choke tube, there is a strong depression which causes the fuel to move upwards from point A. The fuel passes through the carburetor cover to the pilot jet (1) and from there through the vent space. Here it mixes with the air being drawn through the pilot air bleed drilling (2). The white arrows show the passage of the fuel downwards and then horizontally to the volume control screw (3). The point of the volume control screw projects into the discharge drilling through which the idling mixture passes to the choke tube. Let us look at these points on the carburetor.

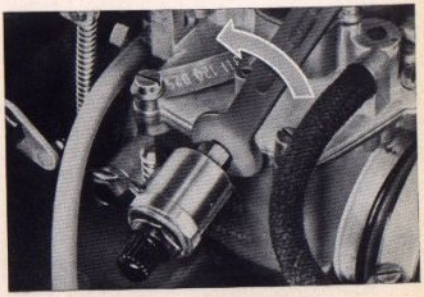
17/4 Take the pilot jet with the electro-magnetic cut-off valve first. If an engine starts badly or starts and then stalls again when idling, it is possible that the pilot jet is passing too little fuel or none at all. Check that the cut-off valve is working properly first. This is quite simple. Pull the cable off the terminal on the cut-off valve and switch the ignition on. When you hold the cable on the terminal, the magnet pulls the internal needle out of the drilling in the pilot jet. When you take the cable off, a spring pushes the needle inwards and stops the flow of fuel. The movement of the needle can be heard distinctly.

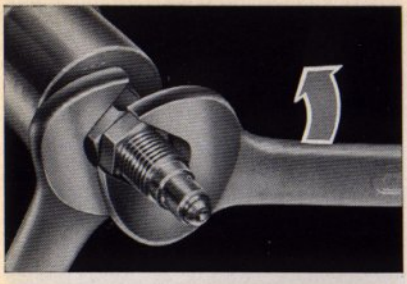


17/5 A glance at the parts will help you to understand this process. The pilot jet (1) is screwed into the cut-off valve (3). (2) is the needle which opens and closes the fuel passage in the jet. A cap (4) protects the other end of the needle which projects through a knurled screw. Turn the knurled screw anti-clockwise to draw the needle out of the pilot jet if the cut-off fails and the pilot jet does not allow fuel to pass. This would prevent the engine from running at idling speed. If the engine still does not run, the pilot jet is damaged or blocked.

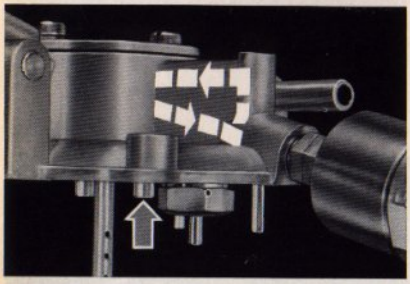


17/6 Always place the wrench on the small hexagon when you wish to screw the pilot jet with cut-off valve out of the carburetor.

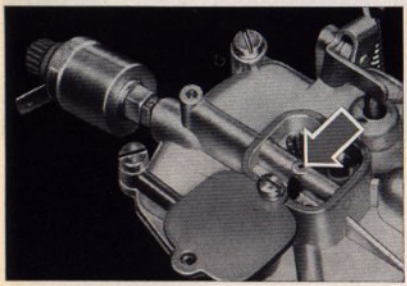




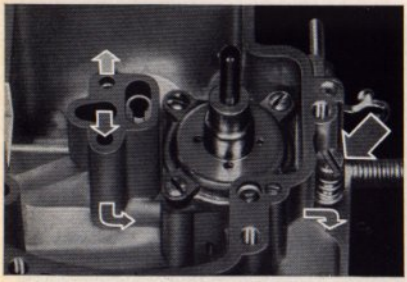
17/7 This is how you should screw the jet out of the cut-off valve with two wrenches. Do not clamp the cut-off valve in a vice under any circumstances as this would damage it. You know why the electro-magnetic pilot jet is fitted: it prevents the engine from running on when the ignition is switched off.



17/8 This is the route the fuel follows to and from the pilot jet. It rises from the carburetor in the direction of the grey arrow into the cover and continues as shown by the white dotted line. The upper drilling goes into the vent space.

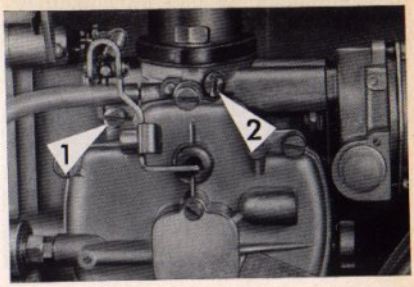


17/9 If you look at it from the other side you can see that the idling passage runs right through the vent space. The cover plate has been swung to the side. The arrow indicates the pilot air bleed drilling through which the air for the mixture formation is drawn.



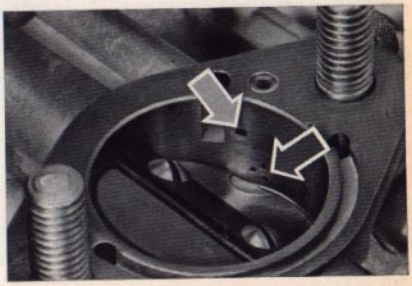
17/10 Here you see the idling passages in the carburetor body. The fuel rises from point A in the direction of light arrow into the carburetor cover. The dark arrow in front of it shows the drilling through which the mixture passes downwards from the carburetor cover. At the bottom the passage bends to the right and goes through the pump chamber to the volume control screw indicated by the arrow on the right. The arrow under the volume control screw points to the internal discharge drilling.

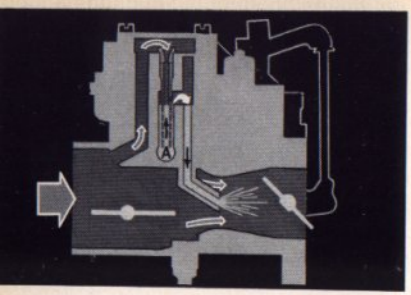
17/11 On the carburetor flange side are two screws. With these screws you adjust the idling on the 32 PHN carburetor just as you do on the other carburetors. The idle adjustment screw (1) regulates the speed and the volume control screw (2) the idling mixture quantity. The speed must not be too high, about 550 rpm is correct, an the mixture must not be too rich.



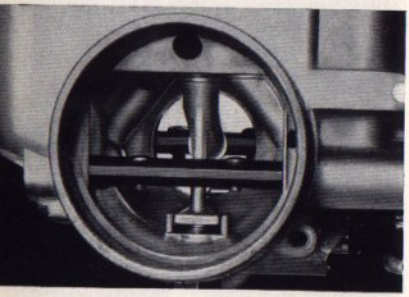
17/12 In order to avoid damage to the tapered point of the volume control screw never screw it in too hard. Check this part as well if having trouble with the idling. The tapered portion must not be grooved, damaged or bent.

17/13 Looking into the choke tube from the throttle valve side you can see the discharge opening as shown by the light arrow. The throttle is slightly open. The dark arrow points to the by-pass drillings which are also connected to the idling mixture passage. At higher speeds the engine receives more fuel. With the throttle opening shown here, additional mixture passes from the by-pass drillings into the choke tube. The depression increases at the same time.

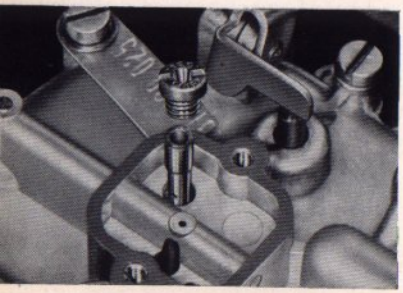




17/14 This drawing shows the normal running condition with the throttle about half open. The strongest depression is now in the area of the discharge arm at the point where the diameter of the choke tube is smallest. The depression causes the fuel to move upwards in the mixing well from point A to a transfer chamber. You can see this by following the black arrow from point A. The white arrow shows the transfer. The fuel now flows downwards into the discharge arm where it is drawn out by the rapidly moving air stream in the choke tube and thoroughly mixed. To return once again to the mixing well. The lines represent the emulsion tube and, above it, the air correction jet.



17/15 You have just seen that the discharge arm is situated at the narrowest part of the induction passage. This is illustrated by this picture which is taken from the air inlet flange end, looking through the induction passage. The restriction forms the choke tube which is cast-in. The reduction in the cross section causes a build-up in the air flowing through the induction passage. This increases the speed of flow and also the suction force which draws the fuel out of the discharge arm.



17/16 We have already mentioned the emulsion tube and the air correction jet. The air correction jet is screwed into the vent chamber and holds the emulsion tube which projects down into the mixing well. Let us look at this closer.

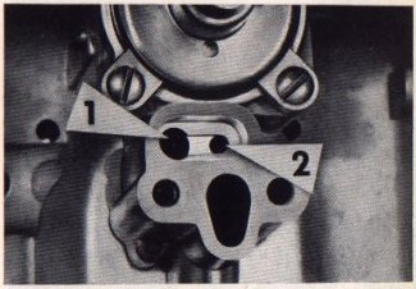
17/17 The emulsion tube has four holes at the lower end. In the upper part is at single hole which is above the fuel level when the tube is installed. When the carburetor returns to idling operation, the flow of fuel from mixing well to the discharge arm must be interrupted. This is achieved as follows: Air from the vent space passes into the transfer chamber through the upper hole in the emulsion tube and stops the siphoning effect. You will appreciate therefore, how important it is that this hole in the emulsion tube is always clear.

17/18 A glance at the carburetor body shows the central block with the various drillings.

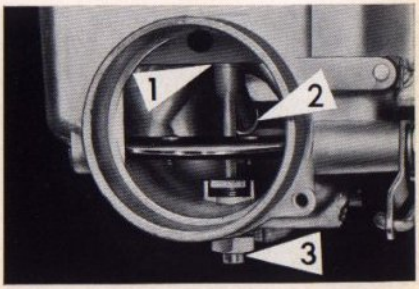
1 - The mixing well into which the emulsion tube projects when the carburetor cover is installed.

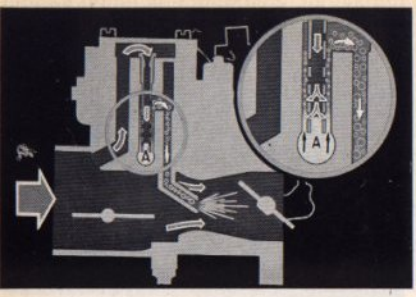
2 - The drilling which leads to the discharge arm.

The recess between these two passages is the transfer chamber.

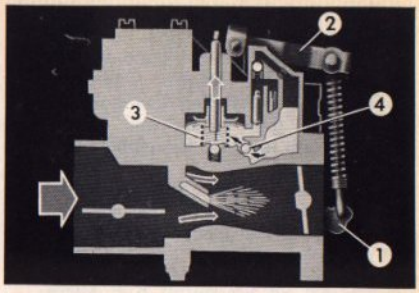


17/19 You will hardly ever have to remove and install the discharge arm but it is just as well to know how this is done. The discharge arm is inserted into the wall of the induction passage (1) and secured in position from below with a threaded pin (3) and a lock nut. The discharge opening (2) points towards the throttle valve and must not be out of line. Removal and installation is easier if you remove the choke valve from the choke valve shaft.

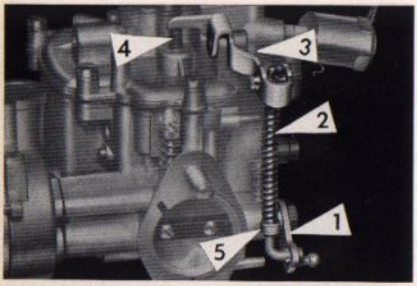




17/20 The normal running operation already described has a second stage which is shown here. As engine output increases and more fuel is required, the fuel level in the mixing well falls. You can see this if you look at point A. The four holes in the emulsion tube are progressively uncovered and additional air is then drawn in via the air correction jet. The air enters the mixing well and mixes with the fuel flowing from the main jet. This mixing process can be seen better in the enlargement. An air/fuel mixture is created in the mixing well and in the transfer chamber and is drawn out of the discharge arm in the direction of the white arrows. So much for the idling and normal running systems. We now go on to the acceleration system.

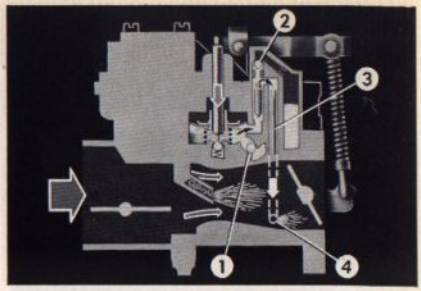


17/21 Here you see the suction stroke of the accelerator pump which works as follows: Every movement of the throttle valve via the accelerator pedal is transferred by the throttle lever (1) to the pump lever (2) via the connecting rod and spring. When the throttle is opened the pump lever presses the pump plunger down, when the throttle is closed again the pump lever releases the pump plunger and the suction stroke begins. The diaphragm spring (3) presses the plunger upwards in the direction of the grey arrow. The suction effect of the diaphragm opens the ball valve (4) which is fitted in the passage leading to the right-hand float chamber. The fuel flows into the pump chamber as shown by black arrows and fills it.

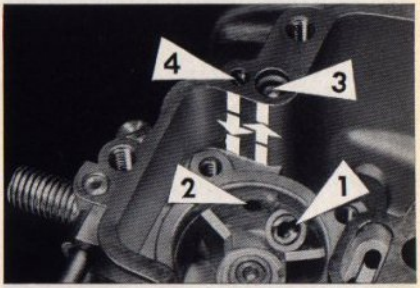


17/22 The pump linkage transmits the movement of the throttle valve to the plunger and so controls the suction and pressure strokes of the accelerator pump. The throttle lever (1) is mounted on the throttle shaft. The connecting rod (2) with spring is swivel mounted in the pump lever (3). The angled arm of the pump lever presses on the pump plunger (4) when the throttle valve is opened. Underneath the spring you can see the adjusting washers (5) the total thickness of which should be .137".

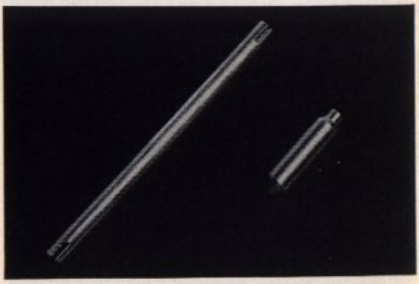
17/23 The acceleration system starts to work as soon as the throttle valve is opened slightly. The pressure stroke which you see here, commences with the transfer from idling to normal running. The pump lever presses the plunger down in the direction of the grey arrow. The diaphragm movement closes the ball valve (1) and forces the fuel out of the pump chamber into the upward passage in the direction of the black arrows, lifting the needle valve. The fuel closes the ball valve (2) in the accelerator system vent drilling and flows through a small transfer chamber in the carburetor cover into a downward drilling which houses the capacity rod (3). This drilling goes right through to the bottom of the carburetor body. The fuel is then finally injected into the induction passage from a special tube (4). This additional fuel enriches the mixture being drawn out of the discharge arm and gives a smooth transfer and rapid acceleration. The injection of fuel ends when the throttle valve is about 1/3 open.

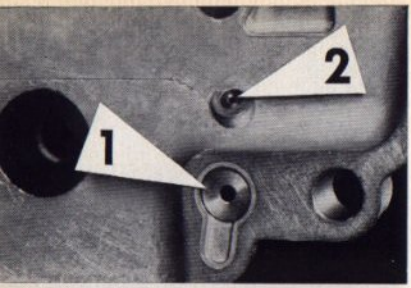


17/24 In this picture you can see the various points in the fuel circuit which we have just described. The accelerator pump has been taken out. The ball valve (1) regulates the flow of fuel from the right-hand float chamber into the pump chamber. The fuel escapes through the drilling (2) which is opened and closed by the needle valve (3). In the other passage the fuel flows downwards. The capacity rod (4) is fitted to reduce the cross sectional area of the drilling.

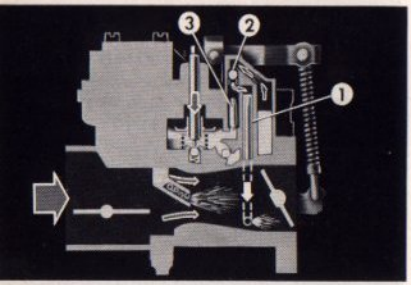


17/25 When you have taken these two parts out, check that they are free of surface deposits and move freely in the drillings. The short one is the needle valve and the long one the capacity rod.

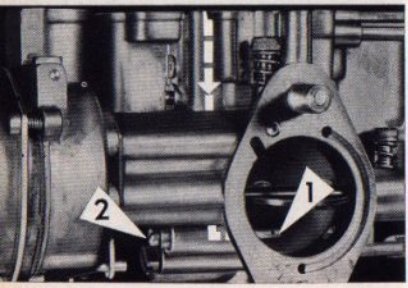




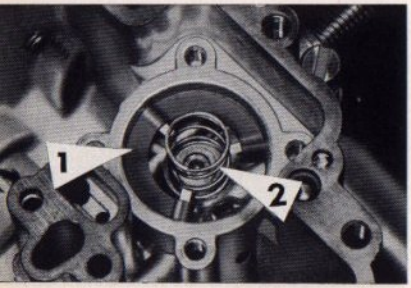
17/26 Here you see the transfer chamber in the carburetor cover. It is marked with a light ring to make it easier to see. When the pressure stroke is finished, air passes through ball valve (1) into the fuel drilling below it. The air enters through the air jet (2) into the vent passage.



17/27 The function of the vent passage is shown in this drawing. As soon as the fuel has been forced out of the pump chamber, the ball valve (2) in the vent passage opens. Air passes from the float chamber into the two drillings as the last drop of fuel is flowing down drilling (1). The needle valve (3) closes the connection to the pump chamber. This stops the siphoning effect and prevents fuel from flowing after the pressure stroke has ended.

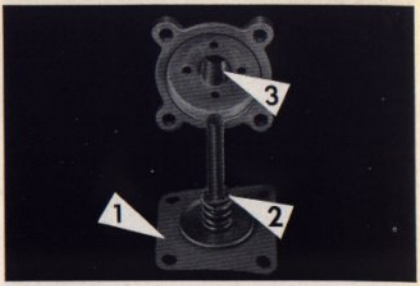


17/28 The downward passage is drilled through to the bottom of the carburetor body as shown here by the white line. At the bottom, a horizontal drilling leads to the choke tube and the injector tube (1) which is fitted into the drilling. This drilling is sealed with a screw (2).

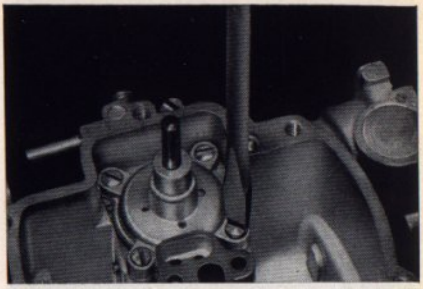


17/29 Note the following points when installing the accelerator pump. The darker part shown here is the spacer ring (1). The three indentations are located over the ribs in the pump chamber. The opening in the ring points towards the two drillings of the acceleration system. In the center of the ring is the diaphragm spring (2).

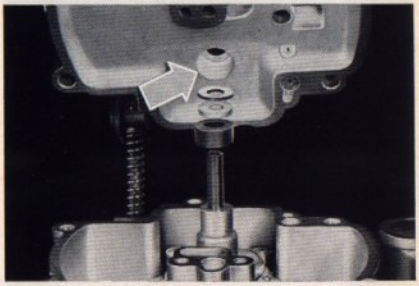
17/30 Here you see the diaphragm (1) with plunger and pump cover. Before you place the cover over the plunger and attach it to the pump chamber, check that the lock ring (2) for the plunger spring does not contact the walls of the conical hole (3) in the pump cover.



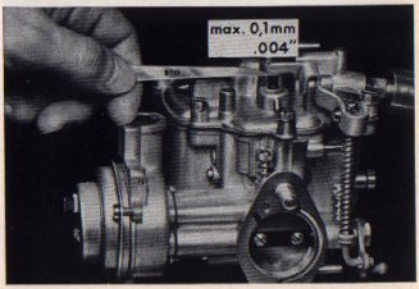
17/31 The pump cover is secured to the pump chamber with four screws as you see here. Tighten the screws evenly but do not overtighten.

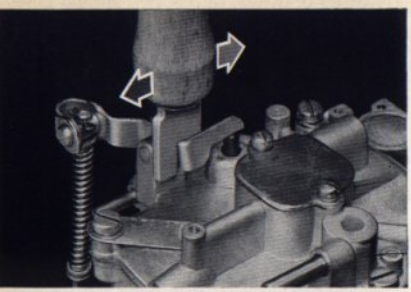


17/32 The arrow points to the hole in the carburetor cover through which the pump plunger projects. The three parts which you see above the plunger go into the hole. Reading from top to bottom they are: one metal washer, one felt ring and one rubber seal. When installing these parts in the carburetor cover, check that the washer and felt ring are centered properly in the hole. Do not forget the gasket between carburetor body and cover when assembling.

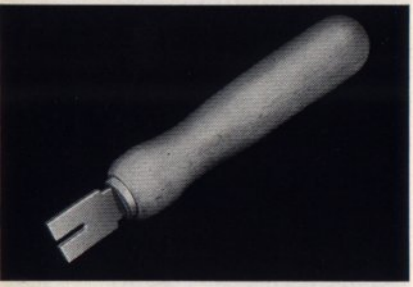


17/33 When the carburetor is completely assembled, there are two important checks to make. The first check is shown here and takes place with the throttle valve fully closed. With a feeler gauge, check the space between the top of the plunger and the pump lever. This must not exceed .004". On the other hand, the pump lever must not contact the plunger when the throttle is closed. This check is important because the pump stroke will commence too late if the clearance is too large and the amount of fuel injected will be too small if there is no clearance. Both these conditions are detrimental to the carburetor performance.

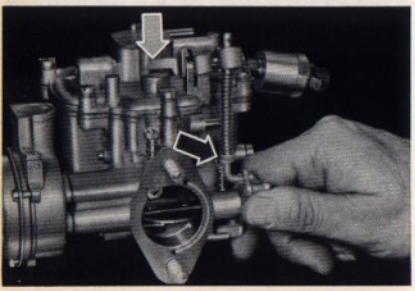




17/34 If the clearance is not correct, it can easily be rectified. The angled arm of the pump lever can be bent carefully with the tool shown here. Pressing the handle in the direction of the light arrow reduces the clearance between lever and plunger and pressing in direction of dark arrow increases it. Ensure that the tool is placed directly at the lever mounting point. A very small movement will usually suffice to rectify the clearance.

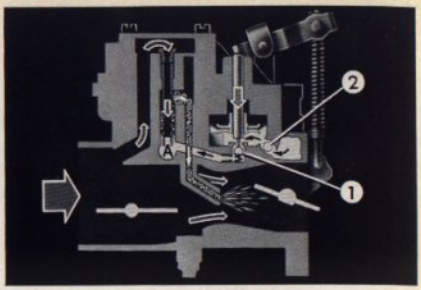


17/35 Here is a picture of the tool. It can be made in any workshop by making a slot about .090" wide and half an inch long in a piece of strip steel about one eighth of an inch thick.

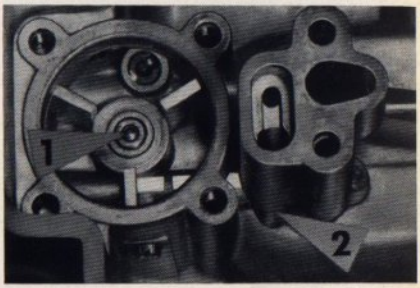


17/36 The second check takes place with the throttle valve fully open. In this position, check if you can push the plunger down further in direction of light arrow. If you can, install one or two washers at the point indicated by the dark arrow. This check is also important because if the plunger is not fully depressed when the throttle is wide open, the operation of the power fuel system will be affected. The carburetor will not supply sufficient fuel at full throttle and this will result in loss of performance.

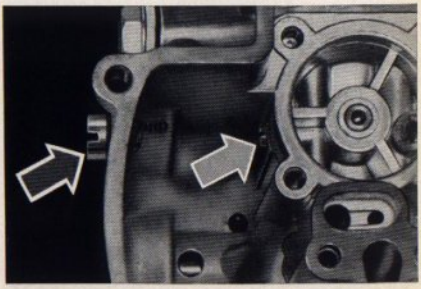
17/37 And now to the last system, namely the power fuel system. This comes into operation in the last third of the throttle valve opening angle. The plunger is pressed down further through the diaphragm in direction of grey arrow until the point depresses the ball (1) and opens the power fuel drilling. This passage leads from the ball valve to the left in direction of black arrow and ends at point A in the mixing well. The strong depression at the discharge arm opens the ball valve (2) and draws additional fuel from the right-hand float chamber through the pump chamber as shown by the black arrows. In this manner the normal running mixture is enriched.

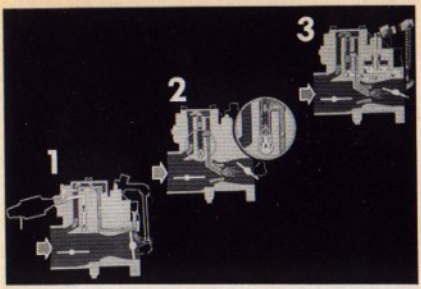


17/38 Here is the accelerator pump chamber again. (1) is the ball valve to the power fuel drilling. Above it you see the ball valve through which the fuel flows from the float chamber into the pump chamber and on into the power fuel system. The path of the power fuel drilling is shown by the white line. At the point marked (2) it joins the mixing well.



17/39 The screw indicated by the light arrow seals a drilling which leads to the ball valve in the power fuel system. The screw can be removed after taking out the screw in the carburetor wall indicated by the dark arrow. The power fuel jet cannot be replaced.





17/40 Now you know all the individual systems in the 32 PHN carburetor. This picture shows the idling circuit, the mixture formation for normal running and the power fuel system once again. The individual systems come into operation according to engine loading and carburetor operating condition. The fuel always flows to the point indicated with the letter A and then passes via different routes to the discharge opening in the induction passage. Please remember these instructions when working on the 32 PHN carburetor. Use this booklet to refresh your knowledge and you will soon become fully conversant with this carburetor.

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