

**The  
System  
You  
Control**

**Dealer  
Level  
Training**





"There's hardly a thing we see or hear or deal with . . . that doesn't get out of adjustment once in a while."



"And when we know how to make the adjustment correctly . . ."



" . . . we can keep it all in tune."



"Whenever you work on the repair or adjustment of a Volkswagen carburetor . . . you're really involved in a system that has to be kept in tune."



"Once it's in your hands . . . it is a system you control. Its many parts and circuits are all designed to operate at maximum efficiency . . . all engineered to the highest standards in the automotive business."



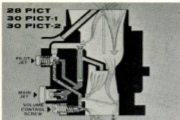
"And even though the Volkswagen carburetor is designed to virtually regulate itself . . . there's a critical adjustment that depends on your skill . . . to make that system perform the way it was intended."



"We're talking about the idle speed adjustment."



"So, whether you're working with the 28 pict" . . .



"... the 30 pict dash one or dash two,"  
... the 30 pict dash three "



"or even the 34 pict dash three ... it's the idle speed adjustment that brings the Volkswagen engine up to full smooth efficiency."



"And that efficiency is based on two factors ..."



"... the idle RPM and the air-fuel mixture."



"It's this combination, correct idle rpm and correct mixture ... that keeps the engine running efficiently ... not too fast or slow, or too rich or lean."



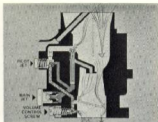
"And here's where you come in ... Let's first talk about idle speed."



"Turning the idle speed adjusting screw in to the right ... opens the throttle valve ... and increases the engine speed."



"Turning it to the left ... closes the throttle valve ... reducing the speed."



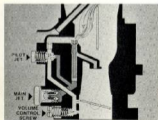
"But what's actually happening to the system as you adjust the idle speed? Let's take a look inside."



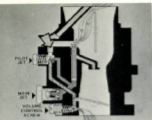
"As the engine runs, the intake strokes of the pistons draw air through the carburetor. The carburetor, which is like a tube, has a throttle valve towards the bottom, which controls the amount of air to the engine."



"Air rushing through the narrow opening between the slightly opened throttle valve and the carburetor causes a vacuum under the throttle valve."



"This section of the idle circuit diagram shows the fuel about to be mixed with incoming air."



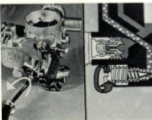
"The vacuum which is below the throttle plate at idle draws fuel from the float bowl through the main jet to the pilot jet. Air for the pilot jet is drawn into the circuit through a calibrated hole at the top of the carburetor"



"The fuel and air meet and mix at the pilot jet ... and this mixture travels to the volume control screw ... where the amount or volume of this mixture is controlled before being allowed to be drawn into the engine."

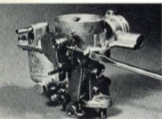


"Turning the volume control screw inward ... closes the passage and reduces the amount of idle fuel-air mixture."



"And turning the volume control screw out ... opens the passage and allows a greater volume of idle fuel-air mixture to travel to the engine."

# RPM AND FUEL-AIR MIXTURE



"So we are concerned with only two carburetor adjustments for correct engine idle ... engine rpm and idle fuel-air mixture."

"Of course, there are many other factors which influence engine operation ... condition of the ignition system, ignition timing, compression, and engine temperature. A tachometer ... must first be attached to the engine before correct adjustment can be made."

"Turn the idle adjusting screw in or out until the idle rpm is correct according to the tachometer."

"Then adjust the volume control screw ... Turning it in slowly until the engine speed starts to drop ..."

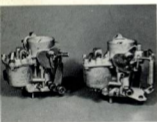




"... then turn it out ... between a quarter and a half turn, until the engine runs smoothly."



"Now repeat the idle speed adjustment ... watching the tachometer ... and, if necessary, re-adjust the volume control screw."



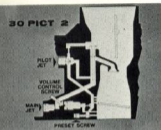
"We've been talking generally about the 28 PICT and the 30-PICT carburetors. Although they are different models, they do have the same adjusting sequence ..."



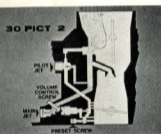
"First the idle rpm ... then the volume control screw ... and finally check the idle rpm again."



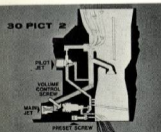
tro devices, some changes were made that require different adjustment techniques. The 30 PICT dash two carburetor, which was installed on 1968 Types one and two vehicles, is the first of the emission control carburetors."



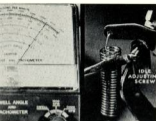
"The idle speed is controlled by an adjusting screw which opens or closes the throttle as before ... but notice the changes in the idle circuit."



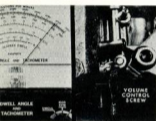
"Air entering the idle circuit passes through a calibrated hole to the pilot jet where it mixes with fuel. The fuel-air mixture reaches the volume-control screw as before ..."



"... but a portion of the mixture is controlled by a factory preset screw ... so adjusting the volume control screw makes only a small difference in engine rpm."



"To adjust a 30 PICT dash two carburetor correctly, be sure that all other engine adjustments are correct and that the engine is warm. With a tachometer attached, adjust the idle to the correct rpm with the idle adjusting screw."



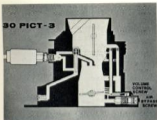
"The volume control screw is slightly different, and because of the refined system makes only slight changes in engine speed. So watch the tachometer and turn the volume control screw in carefully until the speed drops slightly. Then unscrew it until the fastest rpm is reached."



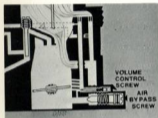
"The idle speed may have to be readjusted. With the 30 PICT dash two, as with other carburetors, be careful of the volume control screw. It is delicate and easily damaged if forced against its seat."



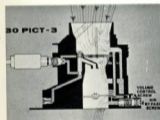
"The 30 PICT dash 3 carburetor, which was introduced on the 1970 models has some significant changes."



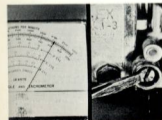
"Remember how we controlled idle speed by opening the throttle valve in the other carburetors? Well, in the 30 PICT dash 3, the throttle is always closed during idle."



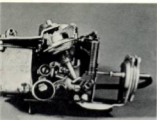
"Idle air now bypasses the throttle valve and is controlled by the air bypass screw. Unscrewing it opens this passage, allowing more air to the engine."



"The fuel circuit has also been modified and is now connected to a volume control drilling and an air bypass where it mixes with the incoming air. Since the volume control screw is preset at the Factory, the air bypass screw controls idle speed and the air fuel mixture is monitored automatically."



"Idle speed adjustment on the 30 PICT dash 3 is very simple. With the engine at normal operating temperature, and a tachometer attached, adjust the idle speed by turning the air bypass screw. Turning it in reduces the speed . . . turning it out, increases the idle speed. And the fuel mixture is automatically regulated. This is the only adjustment you make on the 30 PICT dash 3."



"That brings us up to the 34 PICT dash three . . . the carburetor found on 1971 models. Its functions are the same as those on the 1970 carburetor."



"The important difference, aside from its larger size, is the relocated air bypass screw and the fuel cut-off valve."



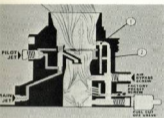
"When the ignition is switched on, the fuel cut-off valve is held open and the idle fuel-air mixture can reach the engine."



"When the ignition is switched off, the valve closes and no fuel can reach the engine."



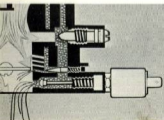
"During idle, fuel from the main jet is drawn through the pilot jet to numbers one and two . . . where it mixes with air from calibrated drillings."



"In drilling No. 1 the fuel-air mixture flows past the Factory pre-set volume control screw, and on to the engine."



"In drilling No. 2 the rest of the fuel-air mixture, which is controlled by the air by-pass screw, passes through the open fuel cut-off valve and on to the engine."



"Unscrewing the air bypass screw opens the passage and allows more air and also more fuel to reach the engine, which of course raises the rpm."



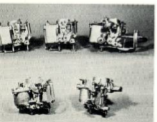
"The preset volume control screw on the 34 PICT dash three, covered with a plastic plug should not be touched during a normal idle adjustment."



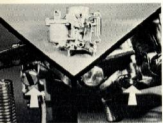
"To adjust the idle speed, simply connect a tachometer to the engine, first making sure the ignition timing is right and that the engine is at operating temperature."



"Then turn the large air bypass screw until the engine is at the correct rpm. This automatically changes the fuel-air mixture to compensate for the changed rpm."



"All Volkswagen carburetors ... from the 28 PICT's to the latest 34 PICT dash three ... work on the same principles. Correct idle adjustment on all of them depends on a precise balance of fuel and air at the proper rpm."



"Careful adjustment of the volume control screw and idle speed screw are essential on the older carburetors."



"And on the newer 30 and 34 PICT dash three, the air bypasses screw adjustment, is vital to controlling the amount of unburned fuel that goes into the exhaust at idle speeds."



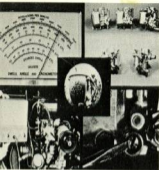
"The important thing is what you know about every Volkswagen that rolls in for checkup or repair."



"And you have to know the system . . ."



"... the Volkswagen carburetor system. Because the idle speed adjustment you make is the key to the efficiency ... of the system you control!"



1. Name three factors other than carburetor adjustment that influences engine idle.

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2. The air bypass screw adjusts both \_\_\_\_\_ and \_\_\_\_\_ on 30 Pict-3 and 34 Pict-3 carburetor.

3. When adjusting the 30 Pict-2 carburetor,

First \_\_\_\_\_

Second \_\_\_\_\_

Finally \_\_\_\_\_

4. Which carburetors have factory preset volume control screws that are not normally adjusted?

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1. Name three factors other than carburetor adjustment that influences engine idle.

Ignition system condition  
Ignition timing  
Compression  
Engine temperature

Valve adjustment  
Intake system condition  
Exhaust system condition

2. The air bypass screw adjusts both RPM  
and Mixture on 30 Pict-3 and 34 Pict-3 carburetor.

3. When adjusting the 30 Pict-2 carburetor,

First Idle RPM

Second Volume Control

Finally Re-check idle RPM

4. Which carburetors have factory preset volume control screws that are not normally adjusted?

30 Pict-3

34 Pict-3