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Harley CV Carburetor Mixture Tuning

Mixture tuning on your Harley Davidson CV carburetor is a simple procedure that can easily be performed with basic tools. The mixture screw or EZ-Just is the key to proper tuning. These tuning steps apply to all Harley CV carbs from 1989 to present that use the CV 40mm style Harley Davidson carburetor but also apply to the CVK40 found on other models. Always start with a fresh set of [spark plugs](#) when tuning.

The carburetor will need to be removed from the manifold so refer to your factory shop manual for this procedure.

With the carburetor removed, place upside down on a sturdy work surface. The picture below shows the float bowl removed however there is no need to remove the bowl and this will also prevent debris from entering the carburetor or from accidentally disturbing the float setting.

Watch the Video: [Installing the EZ-Just Mixture Screw](#)



The CV style Harley carburetor has a small cylindrical tower protruding from the bottom rear of the spigot (behind the bowl). The tower is plugged with a soft metal insert covering the mixture screw. Gaining access to this screw is key to fine tuning and must be removed. The metal plug is very soft and only requires a household drill and 7/64" to 1/8" bit.

Secure the carb in either a vise or by other means that will allow the carburetor to remain steady. Drill a hole into the plug making sure not to "punch" through too fast. You don't want to damaged the mixture screw just below the plug. Allow the drill to slowly cut into the plug rather than push.

Tip: To keep from drilling too far into the plug, many suggested winding electrical tape around the drill bit quite a few times about 3/16" from the tip. This will create a stop to keep the bit from drilling too deep.

Pry the plug out using a pick or you could twist a small sheet metal screw into the hole and use to pull the plug out. With the plug removed clean the area around the mixture screw so no metal fragments remain.

Adjustment Method

If adjusting the existing stock mixture screw instead of installing an EZ-Just, use a small flat head screwdriver and turn the screw clockwise until it GENTLY seats. DO NOT OVER TIGHTEN AS THIS WILL DAMAGE THE NEEDLE SCREW TIP. Count how many turns it takes to reach the closed seated position. Now turn the screw out counter clockwise stopping at a 1/4 turn beyond that which you originally counted. For example, if you turned the screw in 1-1/2 turns then unscrew it 1-3/4 turns. This is your base starting point and alone will allow your idle mixture to be slightly richer than the original setting. In many cases this will be the ideal setting. Also this setting method only applies to carburetors that still have their factory sealed screw that you just uncovered.



Most people prefer using an [EZ-Just mixture screw](#) to ease adjustments and fine tuning as opposed to fumbling with a screwdriver underneath the carburetor.

If the mixture screw has been reset by the dealer or previous owner (evident by the plug already being removed), turn the screw clockwise until it seats. Now turn the screw outward 1 and 3/4 turns to establish a starting point. The same procedure applies if using an EZ-Just mixture screw.

Using an EZ-Just

When removing the original mixture screw to install an EZ-Just be sure not to allow the mixture packing to fall out. This packing consists of a spring, washer, and o-ring and are imperative to the proper function of the mixture screw or EZ-Just. Should these parts fall out they are not available through Harley but CVP makes a replacement [mixture packing kit](#).

Warning: The EZ-Just mixture screw **MUST** be threaded in **completely (lightly seated)** prior to backing out and making final adjustments. Typically between 10-12 full rotations of the screw to seat. If you can see more than 1-2 threads after seating the screw, the screw is not screwed in completely. This could result in the screw falling out during operation. If you have trouble fully threading the EZ-Just, this indicates the inside threads of the carburetor need cleaning or have a damaged thread inside. Working the screw in/out with light machine oil (3-In-1 oil) will often help work past any carbon build up inside the carburetor threads.

Save 10%

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Picture of EZ-Just when fully seated prior to adjustment:



Reinstall the carburetor back on your bike by reversing the steps taken during removal. Be sure to replace the fuel hose clamp, cables, and vacuum lines in the exact same location. Make certain the carb firmly seats back onto the manifold boot as a proper seal is critical. Test the throttle for binding and smooth operation.

The air cleaner assembly must be installed prior to starting the engine, not only to hold the carburetor in place but to prevent having the carburetor backfire in toward you while tuning. Start the engine as normal and bring up to operating temperature prior to fine tuning. Let the bike idle for no more than 5 minutes.

With the engine warmed up and at idle you may now fine tune the idle mixture screw for optimal performance. Acquaint yourself with the adjustment screw location at the bottom rear of the carburetor prior to running the engine. You will need a small screw driver for adjusting the screw unless an EZ-Just has been installed. With the engine idling slow (no more than 900 rpm), turn the screw inward (clockwise) SLOWLY until the engine starts to stumble. You are working with the screw upside down so check to make sure you are turning the screw clockwise or inward. Note that not all engines will stumble or have an RPM change that is noticeable when twisting in the mixture screw. This can be due to the idle jet being too large, installed cams, or ignition systems such as those on Twin Cam 88's. If unable to find the low adjustment point where the idle slows, simply set the screw at 1-3/4 turns out and proceed to the next step.

If the engine will not idle on its own during this procedure, adjust the idle set screw on the throttle side of the carburetor until it idles correctly. Now turn the mixture screw outwards (counter-clockwise) until the engine begins to run smoothly, then add 1/8 of a turn. Maintain proper idle speed and repeat the adjustment each time you adjust the idle speed. Blip the throttle a couple of times and observe the results. If the engine responds quickly with a smooth blast and no backfiring through the carburetor, you have your idle mixture right. If a hesitation occurs then adjust the idle mixture screw out another 1/8 turn. Normally, the mixture screw should only require 2 to 3 turns out from gently seated. Anything above 4 turns indicates the pilot jet is too small.