American Voyager Association

www.amervoyassoc.org

Adjusting CV Carb Pilot Jets

By Bruce Kauffman

Back in the 70's, carburetors could be easily adjusted to produce a very smooth power band as the different circuits of the carb were transitioned. Thanks to air quality concerns, two very important circuits were set extremely lean at the factory and became 'off-limits' to Joe biker.

These two circuits which typically need enriching on the CV carburetor are the pilot jet setting for a strong idle and quick warm up along with changing the needle jet position to improve the just off-idle power delivery.

The AVA tech tips has a great article on accessing the 'off-limits' pilot jet screw by drilling out the caps covering the adjustment on the bottom of the carb. This article helps you to better understand how to properly adjust the pilot screw for optimum performance once uncovered as there really is not a universal 'best' setting. The needle jet adjustment has been covered in a separate write up.

What the pilot screw does is meter a set amount of fuel into the idling air stream. Because idle is one of the least efficient stages of combustion, those pesky air quality guys lean it way out to reduce the amount of foul stuff coming out your tailpipe. Unfortunately, one of the symptoms of this lean setting is the bike takes a lot longer to warm up and get off the choke….

While some might find a satisfactory setting for the pilot screw once it is readjusted to allow more fuel into the idle, I prefer to adjust my pilot screws for the season to obtain maximum year 'round performance as the winter setting needs to be richer than the summer setting.

Why is that? Well, let me explain…..

Because air density is dependent on temperature, the fuel/air ratio changes with the season throwing off the delicate mix. Winter air is cooler and therefore contains more oxygen so the idle mixture becomes leaner as the same amount of fuel is now being mixed in with more O2. Summer air is just the opposite; the air has less oxygen, so the mixture gets richer with the same pilot screw setting.

While these air density changes have little effect on larger throttle positions simply due to the dilution factor, the ratio shift to such a small flow can have a large effect on the how the bike idles. If you set your pilot jet this summer for the best idle, it will tend to be a tad lean come this winter and is why I adjust my little screws twice a year.

Don't groan as there is a super cool tool which makes this job a snap, the pilot jet screw driver!

This 'J' shaped cable driven screw driver allows you to access those pesky pilot screws with such ease you will almost look forward to making those annual adjustments! Well, almost……

I bought my tool from Kawasaki many moons ago, part number 57001-1239. Kawa sells a similar tool which my 2003 catalog shows at $30. The business end is a straight blade screwdriver as shown below.

Simply place the tool under the carb and turn the handle until the driver is aligned into the pilot jet screw and presto! From here, turn the screw in until lightly seated, then count the turns out. To make counting turns easier, I have scribed multiple reference marks on my handle so once I am at zero, I use the most visible mark to count.

How do you know where to set them? Good question!

Start at two turns out from the lightly seated position per the service manual. Turning the screw out allows more fuel into the carb, turning it in reduces. With the bike warmed up and the idle set around 800 rpm, simply turn all four screws out another ¼ turn. What you are looking for is an increase in idle speed, so if the motor starts to bog, the mixture is getting too rich, so go the other way.

Once a setting is found where the idle is the fastest, turn the idle back down to 800 rpm, and try again to make sure you are on the sweet spot. Once done, make sure all four screws are set the same number of turns by lightly seating and counting the turns out with the engine off.

Once you know your settings, mark them down for future reference such as winter is 2 ¼ turns out, summer is 2 turns out. Do not try to cheat the annual adjustments by simply changing each screw just a 'tad'; you will end up with different settings on each cylinder. To keep your settings consistent, always turn the screws in until lightly seated, and then count out the needed number of turns.

This procedure is very dependent on other factors such as your air filter and spark plugs, so do this after all your other tune up stuff is complete.