Carburetor Cleaning and Adjustment

How to perform maintenance on your two-stroke carburetor.







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Story and photos by Jenna Schostkewitz

he proper mix of air and fuel is critical to the life and performance of a two-stroke engine. With practice, a cleaning and rebuild can be done in as little as 20 minutes.

Randy West recommends cleaning carburetors after every race, or at least every few weeks. The owner of West Fabrications in Bartow, Pennsylvania, has worked on and raced micro sprints since 1990. He says all two-stroke carburetors have the same basic parts and construction. Here West demonstrates how to clean and rebuild a 40.5 Kehein PWK carburetor, used on a Honda CR 250 engine.

Always clean the carburetor before working on it. If you have a parts washer, clean the carburetor in the washer with mineral spirits. While cleaning, remember to wear rubber gloves and safety glasses, as small particles could get in your eyes. West says to stay away from carburetor cleaner. It is too harsh and erodes certain components, such as the rubber on the needle valve. Instead, use brake cleaner or WD-40. Once clean, dry all of the parts, inside and out.

- 2 Begin disassembly. Unscrew the top cover, and remove the slide, jet needle, and return spring.
- Unscrew the four float bowl screws. The float bowl and gasket will come off.







Main Jet



Power Jet

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- 4. Using a small punch, push the float pin out of the float. Pull and remove the float, along with the needle valve, from the carburetor.
- 5. This style of carburetor uses three jets. Remove the main jet with a 6mm socket. Remove the pilot jet. For this, West ground down the sides of a flathead screwdriver to fit the screw. Remove the power jet in the same manner.

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Selecting Proper Jetting

Two-stroke engines are notorious for burning pistons, and the culprit is usually insufficient jetting. Here are some tips to select the correct jetting for the conditions.

Jet sizing can be greatly influenced by weather. On days where the air is less humid, the air is very dense with oxygen. In this case, the motor will likely be thirsty for more fuel (to be richer).

An indication of a rich condition is a lazy engine that does not make power down the straights.

A lean engine is likely to burn a piston. To avoid this, up your jet sizing to add more fuel to the air/fuel mixture.

If a pilot jet is too lean, it can cause a hesitation at the crack of the throttle.

Identify a lean condition by reading the spark plug. To read the spark plug, look at the porcelain, electrode, and the J-wire. If the plug is too white, the motor is too lean. If the plug is too dark, it is too rich.





- 6. Remove the air screw, but first note its position for reassembly. Use a screwdriver, and turn the screw all the way in—it should screw two full turns. West does this so he knows the screw's exact position. At this point, the carburetor is completely disassembled and ready for cleaning.
 - Use parts cleaner or Simple Green. Avoid
 carburetor cleaner and Berkebile 2+2, as these chemicals are too caustic.
- 8 Blow dry all all of the parts—this is one of the most important steps. Look through each hole to ensure it is free of dirt, water, and cleaner.
- You can now reassemble the carburetor. Spray
 WD-40 on each part. This helps resist corrosion until the next cleaning.
- **10.** Screw the air screw in until it bottoms out not tight, but just until you feel the screw stop. Turn the screw back out one-and-a-half to two turns. This lets the correct amount of air into the fuel mixture.

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Hold your pilot jet up to the light. Make sure you can see through the small hole. Screw in until it bottoms out. Install the main jet, and tighten until snug. Be careful not to overtighten, because it will break.



12. The float level, float, and needle valve are the most important elements to check during reassembly, West says. Put the spring back on the needle valve. Check your needle valve to make sure the rubber is straight and smooth. There should be no distortion or pimples in the rubber. Make sure the plunger spring pushes in and out. Install the needle valve in the float, and then into the carburetor. Reinstall the pin.

13. Check the float level. If it does not hold pressure, the needle is likely distorted and the carburetor will not work correctly. To check the level, push the float up until the needle valve stops moving. Inspect at the seam of the carburetor and the seam of the float. A perfect position is when the float is down hill slightly. (Too low and you run it dry. Too high and fuel pours out of the air flows. This will make the engine run too rich or too lean.)



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14. Spray the float bowl with WD-40 and reinstall, along with the gasket.

15. Install the power jet and cap. Drop the jet needle back into the slide, and reinstall the return spring.®

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