CP514-350i, C514-350, CP512-300i, and CP512-300 High Speed Carburetor Rebuild
Date – January, 23rd 2015

Typical Walbro Problems
They're really quite reliable, but when problems arise, they are frequently one of these.

- The small filter on the fuel-intake side clogs. Clean it out by removing and spraying carb cleaner through in the opposite direction of normal fuel flow. Re-insert using a pencil eraser.
- The float diaphragm degrades and reap havoc on tuning, especially the low end and idle.
- The internal needle valve WILL leak when they get old or worn out. If you notice gas dripping from your carb, or if the idle gets unreliable, replace the needle valve and adjust the lever even with (or slightly below) the carb housing if you don't have a gauge.
- The fuel pump membrane gets stretched and/or sometimes hardens from the gas. It needs to be replaced occasionally. If your pump doesn't pump properly, (1) it will be hard to start (2) it will tend to run lean, and opening the needles won't help much if any.
- Erratic idle, or no idle is often traced to a bad internal needle valve, bad float diaphragm, bad pump, and most common... crap in the carb. You may also have an air leak!
- The pop-off pressure is out of the normal range. About 12 PSI is normal. Pop off pressure is how much pressure is required to pop the main-jet needle off of its seat. The fuel pump pushes fuel against a spring. Either having the wrong spring, a cut spring or stretched spring can affect this pressure.

All Walbro carbs will run in any position, but they tune "best" as a side draft carb meaning the airflow intake is horizontal. The down draft position tends to run a little rich at idle, and the updraft tends to run a little lean at idle although it's easily tuned regardless.

Some basic terms (see diagrams). The low end needle refers to the one that trims idle mixture mostly and affects mid-range mixture somewhat. The high end needle trims mixture at mid-range through full power. Unscrewing the needles on this carb increases fuel flow which richens the fuel/air mixture. Screwing them in reduces fuel flow which leans the fuel/air mixture. Don't confuse fuel/air mixture with fuel/oil mixture which refers to how much oil gets poured into each gallon of gas.

First, screw in both low end & high end needles all the way then unscrew to about 1 3/4 to 2 turns out each. Choke or prime the motor until the carb is wet. Start the engine and let it warm up. Let's set the top end first since it's the easier of the two. Go to full throttle. Adjust the top end needle for peak RPM. Leave it wide open for about a minute to see if it changes any.

Should the engine go lean, open the low end needle slightly, if this doesn't work you will have to adjust the needle valve inside the carb. (I will explain this later) If the top end runs OK, then slowly pull the throttle down until the engine begins to "four cycle" hold the throttle there. Adjust the low end needle until the "four cycling" barely stops. Now lower the throttle more until it "four cycles" again, and adjust the low end again. Keep doing this until you reach full idle. Now, from full idle begin to throttle up until the engine starts to bog or hesitate. Open up the low end needle just enough to eliminate the bog or hesitation.

When this is done right, you will be able to set the throttle in any position and it won't four cycle, plus you will be able to transition from idle to full power without any hesitation at all. Now, for easy starting it's best to have the low end a little rich and it will four-stroke a little.

Rebuild a Two-Cycle Engine Carburetor

Before gasoline makers started adding ethanol to gasoline, rebuilding a carburetor was a repair that was rarely--if ever--needed. Since the ethanol in gasoline breaks down the gaskets and other rubber components in the carburetor, these days you will find it necessary to rebuild your carburetor when the parts become cracked or brittle.
A well-maintained carburetor will only need a rebuild when the internal components begin breaking down. The location of model numbers on carburetors vary, but you can find a model number by searching for a combination of letters and numbers.

Before rebuilding the carburetor should be completely disassembled and clean. The best cleaning method is to use an Ultrasonic cleaner. Using break cleaner or carburetor cleaner will not remove all of the containments from the internal surfaces and passages of the carburetor.

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<th>UPC</th>
<th>Description</th>
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<tr>
<td>00510112803</td>
<td>CARBURATOR GASKETS CP iLUBE/STD</td>
<td>INCLUDES: Screen Inlet, Pump Diaphragm &amp; Gasket, Metering Diaphragm &amp; Gasket, Metering Spring &amp; Lever, Needle Idle &quot;L&quot; &amp; High &quot;H&quot;</td>
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**Breaking Down the Carburetor**

You will find it helpful to organize the parts into rows for the top and bottom of the carburetor as you break it down.

1. Remove the carburetor base
Remove the four screws holding the base plate to the carburetor.

Use the base plate and the four screws to start the row of parts for the bottom assembly.

2. Remove the bottom gasket

Remove the gasket from the bottom of the carburetor and separate it from the diaphragm.
Remember to organize the parts in the order you removed them. This will help simplify the carburetor reassembly process later.

3. Remove the needle assembly

Unscrew the screw that holds the needle assembly in the carburetor.

Hold the needle assembly down as you do this. The spring beneath it can cause it to launch across your work area.
Turn the carburetor around to continue disassembling the top cover.

4. Remove the carburetor's top cover

Remove the screw that holds the top cover to the carburetor.

Place the top cover and screw in a new row to keep the parts from each side of the carburetor organized.
5. Remove the gasket

Remove the gasket and separate it from the reed valve.

6. Remove the air filter

Use a pick to remove the air filter screen from the carburetor.
Swapping Out the Parts

Manufacturers design rebuild kits to service multiple carburetor models, so you may find that your kit has extra parts. This is normal.

1. Pour out the rebuild kit

Pour the rebuild kit onto your work surface. This will make swapping out the parts easier and will also help you identify the extra parts not meant for your carburetor.

2. Swap out the old parts

Swap the new parts from the rebuild kit with the old parts from the carburetor. When you reassemble your carburetor you will know that all the parts are new.
3. Set the old parts aside

Set the old and unused parts aside. When you finish rebuilding the carburetor you can throw these parts away.

Reassembling the Carburetor

To finish rebuilding your carburetor, all you have to do is reassemble it. Since you've replaced the rows of old parts with new ones, you can simply begin putting the carburetor back together to finish the rebuild.

1. Install the new filter screen

The filter screen is a delicate part, so use caution when installing it. You can use a small Allen wrench to press the filter into place, but be careful not to crease or tear it.

2. Replace the top cover assembly

Add the new gasket to the top cover.
Then add the reed valve.

Place the top cover assembly on the carburetor and tighten the screw.

Now turn the carburetor over to finish the reassembly.
3. **Install the needle assembly**

Begin the needle assembly installation by setting the spring into the carburetor. Then thread the needle into the lifter assembly.

Drop it into place over the spring and hold it in place.

Continue holding the needle assembly and tighten the screw. DO NOT bend the needle assembly pivot.
4. Install the bottom cover

Set the bottom gasket in place on the carburetor.

Then set the diaphragm into place.
Set the bottom cover into place and begin threading the four screws. Then just tighten the screws to finalize your carburetor rebuild.