Carburetor Issues?

Having fuel delivery issues on your carbureted Corvette? Here is a quick reference chart to help guide you in the right direction of a carburetor diagnosis. This chart assumes your engine has adequate cylinder compression, your ignition system is operating correctly and is set to the correct timing, the condition of your fuel is good, and your exhaust is not obstructed.

A carburetor basically consists of an open pipe through which the air passes into the inlet manifold of the engine. The pipe is in the form of a Venturi: it narrows in section and then widens again, causing the airflow to increase in speed in the narrowest part. Below the Venturi is a butterfly valve called the throttle valve — a rotating disc that can be turned end-on to the airflow, so as to hardly restrict the flow at all, or can be rotated so that it (almost) completely blocks the flow of air. This valve controls the flow of air through the carburetor throat and thus the quantity of air/fuel mixture the system will deliver, thereby regulating engine power and speed.

Carburetor Troubleshooting Guide

CONDITION	POSSIBLE CAUSE	CORRECTION
Cold Starting Problem		
Engine cranks but will not start.	1) Choke not closing.	1) Inspect choke adjustment and for something binding. Adjust if necessary.
	2) Choke linkage binding.	2) Lube with penetrating oil and check for something bent. Adjust if necessary.
	3) No gas in carb.	3) Check fuel delivery. Look for plugged filter or clogged lines, bad pump, stuck needle & seat, and fuel pressure.
	4) Accelerator pump defective or blown out.	4) Replace the pump. Problem is usually caused by bad gas, dirt in gas, or vacuum leak or ignition problems causing engine spitback.
Engine starts, then dies within a few seconds.	1) Choke not closing properly.	1) See notes above. Adjust choke if necessary.
	2) Choke pull off setting incorrect.	2) Adjust to factory specs. Carb can get bumped in shipping or transportation and can accidentally change the setting.
	3) Fast idle RPM set too slow.	3) Adjust to recommended RPM.
	4)Low fuel delivery.	4) Correct delivery to carb. Usually it is a plugged up filter.
	5) Electrical or compression problems on the engine.	5) Do complete tune up & diagnosis. Fix the problems found.
	6) Float level set very low.	6) Check & adjust the float level to factory specs.
	7) No electricity up to idle solenoid, or no ground.	7) Check for power & ground. Correct the problem.
	8) Defective idle solenoid.	8) Replace it.
Engine normally starts OK but then dies backing out the driveway or at the first stop sign. After that it runs OK.	1) Choke not set tight enough.	1) Set choke a little tighter & try it.
	2) Choke pull-off opening too much.	2) The setting varies depending upon the exact application. One carb may fit several applications. Set the pull-off so the choke is a little tighter.
Engine starts OK, increases RPM then gets too slow with lots of black smoke.	1) Choke set too tight.	1) Adjust a little (1/8") looser.
	2) Pull-off set too tight.	2) Adjust so it is open a little more.
	3) Slow flooding.	3) Fix cause of flooding. (see "flooding" section coming soon)
	4) Float level very high.	4) (Rare) Set to factory specs.
	5) Pull-off diaphram blown.	5) Caused by installer allowing engine to spit-back up through carb. Replace the pull off.
	6) Sunk float.	6) Same cause as #6 above. Replace the float.
	7) Choke spring may be backwards and is getting tight when heating up instead of loose.	7) Remove choke cover, cool off choke, reverse spring, reinstall cover and set tension to factory specs.
Warm Starting Problem		
Engine cranks but will not start.	1) Carburetor flooding.	1) See section on "flooding" for details on how to correct.
	2) Choke is closed when engine is hot.	2) Find & fix cause for choke staying closed. Look for no heat source, spring in backwards, or something jammed or bent.
	3) No fuel	3) Check fuel delivery volume and pressure. Look for clogged lines, filter, or pump. Check for kinked or swollen fuel lines.
	4) No air.	4) Check for clogged air filter, especially after driving through muddy or dusty area.
	5) Too much air	5) Look for big vacuum leak, such as broken hose, blown gasket, bad power brake diaphram, bad PCV valve.
Engine starts, then dies within a few seconds.	1) Choke is staying closed	1) Diagnose and fix choke problem.
	2) Flooding	2) See section on flooding.
	3) Venting system failure.	3) Check out entire fuel system and venting system; including the carburetor vent valve, the charcoal canister, all hoses & check valves in the system, and any solenoids that trigger the vent system to operate.
	4) Idle jet plugged up with dirt.	4) Clean out the idle jet and any other dirt in the carb.
	5) Idle air bleed plugged up or missing.	5) Check idle air bleed. Clean or replace as necessary.
	6) Idle cut-off solenoid not working.	6) Check idle solenoid, especially for power to it and ground to it, replace solenoid if necessary.
Engine starts OK, but then get real rough. Lots of black smoke.	1) Slow flooding.	1) See flooding section.
	2) Float sunk. (usually caused by spitback up through carb.)	2) Replace float.
	3) Venting system problem.	3) Check entire venting system & fix.
Cold Engine Drivability Problem		
Engine stalls when transmission is put into gear.	1) Incorrect choke pull-off adjustment.	1) Readjust the pull-off or replace if necessary.
	2) Fast idle RPM incorrect (too slow)	2) Speed up the fast idle to factory specs.
	3) Engine running too lean because of vacuum leak or dirty jet.	3) Check for vacuum leak. Flow test carb to check jetting.
Hesitation, stalling, stumbling, flatspot, or deadspot during acceleration: Backfiring or spitback up through carb.	1) Vacuum leak.	1) Check for vacuum leak & fix it.
	2) Accelerator pump nozzle has dirt in it.	2) Clean out the nozzle tip.
	3) Accelerator pump cup swollen up from contact with bad gas or chemicals.	3) Replace the pump cup.
	4) Economizer jet too small or partly blocked.	4) Clean out economizer jet & check the size.
	5) Choke pull-off open too far.	5) Adjust the pull-off tighter.
	6) Secondary throttle plates not closing all the way.	6) Fix it.
	7) Idle jet partly blocked with dirt.	7) Clean out the jet & any other dirt that is in there.
Hesitation, deadspot or stalling after first mile of warmup.	1) Defective electric assist on choke	1) Replace it.
	2) Defective accelerator pump (low output).	2) Replace it.
	3) Float level setting very low.	3) Adjust to factory specs.
Periodic backfiring with black exhaust smoke: Deadspot, flatspot, hesitation, stumbling, backfiring.	1) Plugged heat crossover system in manifold.	1) Inspect and clean passages in intake manifold and heads. Test heat riser valve, replace if defective.
	2) Defective source of hot air up to the carburetor.	2) Check and replace as necessary: heat shroud duct, temperature sensor, vacuum door motor, manifold vacuum supply.
Warm Engine Drivability Problem		
Hesitation under light throttle: Deadspot & stumble.	1) Accelerator pump problems.	1) Inspect and adjust pump stroke, pump plunger, discharge nozzles and check valves. Inspect the accelerator pump, look for swollen pump cup.
	2) Float level set very low.	2) Set float to factory specs.
	3) Dirty idle jet or economizer jet.	3) Inspect idle jets. Clean as necessary.
	4) Idle speed set too fast & mixture is too lean (commonly).	4) Richen up the idle mixture, reset idle speed to factory specs, then lastly reset the mixture using the lean drop method.
	5) Idle cut-off solenoid not working, or no power to it or no ground to it.	5) Inspect & fix as necessary.
	6) Frozen or binding heated air inlet (stuck in full hot or full cold position).	6) Inspect & fix as necessary.
Doggy, runs rough, lots of black smoke at idle.	1) Choke staying closed or partly closed.	1) Fix choke or heat source.
	2) No electricity or heat source to choke.	2) Fix cause of no heat source or electricity to choke.
Hesitation under heavy throttle: Deadspot & stumbles. May backfire or spitback.	1) Defective accelerator pump.	1) Look for dirt in pump nozzles, swollen cup from bad gas, or check ball missing or stuck.
	2) Float level setting very low.	2) Reset to factory specs.
	3) Secondary air valve set wrong.	3) Check & adjust the secondary air valve spring.
Dies coming up to a stop sign, but idles ok.	1) Bad throttle positioner or bad vacuum source to it.	1) Check throttle positioner with a vacuum pump. Replace if defective. Replace any cracked hoses. Make certain that the vacuum hose is connected to the correct pipe on carb or on the thermal switch. Make sure all related pipes have vacuum.
	2) Idle speed and mixture incorrectly adjusted.	2) Reset to factory specs. See the adjustment and installation instructions in owners manual.
	3) Loose or defective float pin.	3) Fix or replace the pin.
Poor Performance or Gas Mileage		
No power or bad gas mileage.	1) Clogged gas tank vent or fuel venting system.	1) Remove gas cap & see if performance improves. If so clean or replace the gas cap. Check the charcoal cannister, hoses to it & any check valves. Check the electric vent valve on the carb if there is one, & make sure it is getting power at the right time.
	2) Choke not opening	2) Fix choke or heat source problem.
	3) Secondary not opening.	3) Check the lockout: secondaries won't open unless choke is coming off all the way. Check for sticky or bent shaft or linkage. If air valve type (Rochester), check the spring tension, the plastic cam, & metering rods for dragging or sticking.
	4) Wrong main jets or rods	4) Check them. Replace if necessary.
	5) Dragging brakes.	5) Fix brake problem.
	6) Float level much too high, or float partly sunk.	6) Set to factory recommendations, & check float weight, replace if necessary.

For a more detailed troubleshooting chart, click here to read the *Engine Troubleshooting Tips* on our Community page.