RESETTING THE IDLE MIXTURE
November 7, 2004
Vulcan 800A/B/Drifter

Note: Procedure is best done with bike completely cooled down; this makes bolt/nut removal easier and prevents burns to modifier. *Read completely through these instructions prior to performing actual modification; this will enable modifier to best plot the course(s) of action, sequence of events, and specific parts to be used.*

Note: All directions given in relation to the bike (right, left, front, back) are as seen when sitting on the bike in a riding position.

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BIKE TYPES: There are 2 types of bikes manufactured; **California** models, which are emissions-legal in all 50 states, and **49-state** models, whose emissions do not meet the California Air Regulatory Board's standards. **California** models have a vacuum hose routing diagram on the inside of the right side cover, a charcoal vapor canister inside, and a fuel vapor recovery line on the left side of the fuel tank running from a nipple on the front to the charcoal vapor canister. Later year **California** models also have a fuel vapor recovery line on the right side of the fuel tank; do not confuse this line with the fuel tank vent line that is present on the right side of the fuel tank on **all** models. It is necessary to know *which* model the bike being modified is, as a few steps are different. The easiest and quickest way to tell the difference is to check the left underside of the fuel tank; if there is a nipple and a line on the left side, the bike is a **California** model. Note that some instructions are labeled **California Models,** some **All Models** and some **49 State Models**.

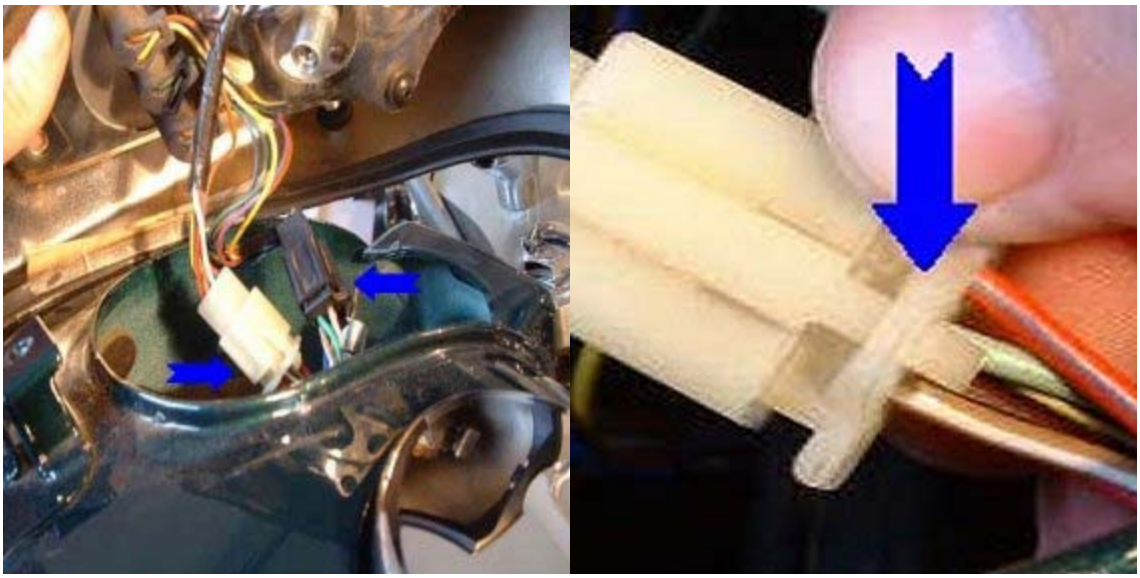
SEAT REMOVAL

Remove the 8mm bolt at the rear that holds the back of the seat onto the fender. Strike the back of the rider's section of the seat (the "step" where it comes up to become the passenger seat) solidly toward the rear of the bike to release the clips holding the seat onto the U-bracket on the rear fender. Lift the rear of the seat and pull backwards; the front tab will come out from underneath the rear bolt of the fuel tank. Set the seat aside someplace safe.

FUEL TANK REMOVAL
This is easiest if there is very little fuel in the tank; if it is full or partly full the tank will be heavier, and the fuel will slosh, making it more difficult to control.


a. Remove the 8mm bolt at the bottom of the instrument panel (the triangular panel that holds the 3 indicator lights) on the speedometer pod. Carefully lift the rear of the pod and push forward to release the clip holding the pod at the front of the tank. Tilt the pod to allow access underneath.

1. Unscrew the speedometer cable from the bottom of the speedometer.



2. Unhook the 2 wiring harness connectors. Each connector is locked together by a slot-tab arrangement at the junction; push down on the tab and carefully pull backwards on the other half of the connector. *Do not pull on the wiring*. Lift the pod clear of the tank and put it aside someplace safe.

b. Disconnect the main fuel line (large hose) from the bottom of the petcock on the left side of the tank.

Note: A small amount of fuel will spill from both the petcock and the line; have rags and a non-flammable container ready to catch the fuel (do *not* use a Styrofoam cup; gasoline will dissolve Styrofoam). Dispose of this fuel safely and immediately. Wipe up any fuel that spilled onto the bike and/or the floor; dispose of the rags safely and immediately. Do *not* store the rags for reuse; *rags soaked with gasoline are known to spontaneously combust*.

c. Disconnect the vacuum line (small hose) from the rear of the petcock.

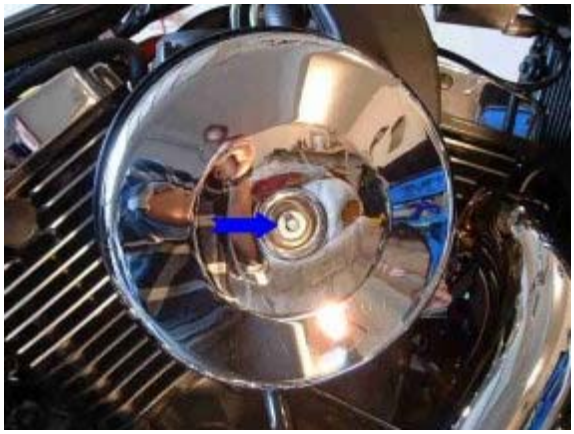
d. [California Models] Look/feel for the fuel vapor recovery line on the left side of the tank towards the front; disconnect this line from the nipple on the fuel tank. Look/feel along this line for the tabs that secure the line along the inside of the seam at the bottom of the tank; free the line from these tabs and allow it to hang. Repeat for fuel vapor recovery line on the right side of the tank, if present; if so, label this line to differentiate it from the tank vent line.

d. [All Models] Look/feel for the tank vent line on the right side of the tank towards the front; disconnect this line from the nipple on the fuel tank. Look/feel along this line for the tabs that secure it to the inside of the seam of the tank; free the line from these tabs and allow it to hang.


e. Remove the 12mm bolts at the rear and front of the tank. Lift the tank free, being careful not to tangle the crossbrace with the speedometer cable or instrument wiring.

Set the tank aside someplace safe, placing it upright onto something that will keep the petcock off a solid surface.

AIRBOX REMOVAL



a. Remove the 10mm nut and washer from the center of the round chrome air filter cover. Set nut and washer aside someplace safe. Remove the air filter cover and set it aside someplace safe. Remove the OEM air filter.

b. Disconnect and label the crankcase vent line (small hose) and the air switch valve line (large hose) from the rear of the backing plate.

c. The idle RPM adjust is a black plastic knob hanging to the lower right of the backing plate; it is secured on a small clip to the rear of the backing plate. Pull the line clear of the clip and allow it to hang. Disconnect the crankcase vent line from the bottom of the airbox (this is the line that leads to the "milk bottle" at the right front of the frame).

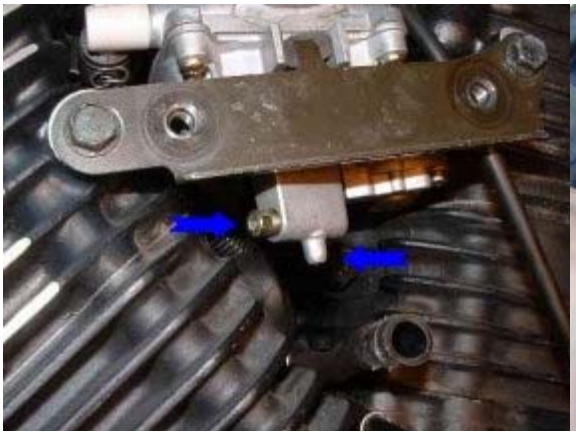
d. Remove the 2 10mm bolts holding the backing plate to the securing bracket in front of the carburetor. Set these bolts aside someplace safe. Carefully ease the backing plate off the carburetor.

Note the position of the black rubber boot between the backing plate and the carb, and that the boot *is* rubber and *must not* be damaged. Set the backing plate aside someplace safe.

CARBURETOR REMOVAL

Resetting the idle mixture screw *can* be done without completely removing the carburetor from the bike; I (Russian Wolf) have done it many times. However, drilling and a steady hand are necessary; removal of the carburetor to a workbench is often best. This is the only time removal of the carburetor from the motor is necessary; further adjustments can be made with the carburetor in place.

(Paragraphs a, b, and c refer to rejetting whether the carburetor is removed to a workbench or not; paragraph d is applicable only if the carburetor is to be removed to a workbench)




a. Drain fuel from carburetor float bowl by opening the 3mm Allen head bolt (carburetor drain plug) next to the small nipple on the bottom of the carburetor (carburetor drain). Catch this fuel in a non-flammable container (do *not* use a Styrofoam cup; gasoline will dissolve Styrofoam). Dispose of this fuel safely and immediately. Tighten drain plug.

b. Remove the 2 10mm bolts holding the airbox mounting bracket/carburetor stop in place. ***Caution***: These bolts are harder than the cylinders they are threaded into; be ***very*** careful not to strip the threads inside the cylinder. Set bolts aside someplace safe. Note the position of the rubber tab holding this bracket into place against the carburetor. Carefully remove bracket from carburetor and motor. Set bracket aside someplace safe.

c. A rubber boot connects the carburetor to the intake manifold, secured with 2 3mm Allen head, Phillips or slotted head hose-type clamps (clamp bolts differ depending on model year). Experience has shown that it is best to remove the carburetor from the boot, leaving the boot connected to the manifold; thus, loosen only the bolt for the clamp on the *carburetor side* of the boot. Ease the carburetor out of the manifold boot; note the position of the notch on the boot that aligns the carburetor into place.

Note: When using a standard 3mm Allen wrench or a small screwdriver, it is easier to reach the bolt from the left side of the bike, between the cylinders. However, this is very difficult to accomplish without previously removing the EPA equipment. When using a long 3mm Allen T-handle wrench (which speeds and eases the loosening) or a long, thin-shank screwdriver, it can be reached from above, beside the frame spine.

Note: If resetting is to be accomplished with the carburetor *in place*, put a clean, lint-free cloth in the open intake manifold to prevent foreign object intrusion; go to **RESETTING MIXTURE INSTRUCTIONS**.

d. Disconnect the choke knob from the mounting bracket on the left side of the bike; leave the cable connected to the carburetor. Leave the idle adjustment cable and the fuel line connected to the carburetor. Label and disconnect the remaining 2 lines on the back of the carburetor. One is the carburetor vent line going to the evaporative canister (**California Model**) or exiting just forward of the rear swing arm or inside the right side cover (**49-state Models**); the other is the vacuum source for the fuel petcock and the air switch valve (**All Models**). Label each of the two throttle cables and its position on the carburetor; disconnect the cables. The carburetor is now free and can be taken to a clean workbench. Put a clean, lint-free cloth in the open intake manifold to prevent foreign object intrusion.

RESETTING MIXTURE INSTRUCTIONS

All procedures involving the carburetor should be approached carefully; bolt heads can be stripped out or valve seats ruined if too much force is used. If the carburetor has been *removed*, turn it over and examine the bottom; if the carburetor is *still attached*, tilt carburetor carefully to examine the bottom.

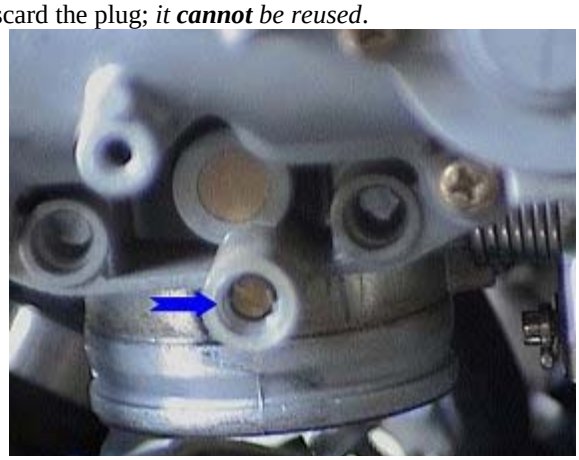
a. The small hole with a factory-installed aluminum plug is in the center of the bottom, close to the manifold boot. Do **not** drill the brass-colored plug. The plug covers the fuel/air mixture screw, and must be removed to adjust the mixture. Use a center punch to make a slight indent in the center of the plug to prevent the drill bit from wandering. If the carburetor is still attached, put a rag on the engine case under the carburetor to catch the metal shavings. With a 5/32" drill bit and drill motor, begin drilling this plug.

***** EXERCISE EXTREME CAUTION DURING THIS PROCEDURE *****

The plug is soft and thin, and the drill bit could punch through and ruin the brass mixture screw beneath. Use a low RPM on the drill motor, light pressure, and pull back frequently to check progress. Stop *immediately* when the drill bit breaks through the plug. The plug may come out while attached to the drill bit; if not, screw in a sheet metal screw until it is seated.

***** EXERCISE EXTREME CAUTION DURING THIS PROCEDURE *****

There is not much space between the plug and the brass mixture screw; seating the sheet metal screw too deeply will ruin the mixture screw head. Once the sheet metal screw is seated, grip its head with a pair of pliers and gently pull on the screw with a rocking motion. The plug will come out fairly easily. Discard the plug; *it **cannot** be reused*.



b. Examine the inside of the hole and find the brass flat-head slotted screw. This is the fuel/air mixture screw. Turn this screw *clockwise* until it stops, counting the turns as it goes. *Do not* seat this screw *forcefully* or the valve seat will be ruined. Write down the number of turns noted in case the settings should ever need to be returned to factory original. Turn screw back *counter-clockwise* 2½ turns out. This is a starting point only; most stock bikes are running with this setting ± ¼ turn. However, all motors and all carburetors are different, so observation of subsequent performance is essential to dial in the correct setting for any individual bike. Clean up all metal shavings and fragments before proceeding.

CARBURETOR REINSTALLATION

a. Remove the rag from the intake manifold. Inspect inside the manifold for and clean away any debris.
b. If the carburetor was completely removed, reroute the choke cable and fuel line through to the left side of the bike. Reconnect the vacuum line, vent line, and throttle cables. ***CAUTION***: Ensure that each of the 2 throttle cables are connected to their proper points, or the throttle will work backwards (or not at all). Reconnect the choke knob to the left side frame of the bike. Realign the carburetor with the notch in the boot and carefully slide it into place; saliva makes an effective lubricant, if necessary. Ensure that the carburetor is securely mounted *inside* the boot, with no boot edges rolled over or under, and the edges completely against the back of the

carburetor. Tighten the boot clamp. ***CAUTION***: Do not *overtighten* the boot clamp; this can result in the boot edges flaring, which will create an air leak. The best method of insuring proper tightening is to match the paint marks of the clamp and clamp screw, or to align the edges of the clamp opening with the (undisturbed) edges of the manifold clamp.

REINSTALLATION OF REMOVED PARTS

In reverse order of disassembly, reinstall the airbox, fuel tank and seat. Make sure to reconnect the fuel, vacuum and vent lines to the fuel tank. When reinstalling the speedometer cable, ensure it is *tightly* screwed on; an extra ¼ turn with a pair pliers after getting it finger-tight is a good idea to ward off a known problem with this cable backing off. Wipe up any spilled fluids, put away all tools, and take the bike outside. As the carburetor was drained of fuel, put the fuel petcock in the **PRI** position until the motor is started the first time. Once the motor is running, return the petcock to the **ON** position. Ride and enjoy.

Hope this was helpful.

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