

## **Suzuki Marauder VZ800 cam installation:**

**First read this procedure over a couple times and assemble the tools and things you will need before jumping in.**

Approximate time needed: about 4 to 5 hours (if you have some help) 7 to 8 hours estimated if you are doing it solo.

**Tools needed: Service manual, standard hand tools, metric sockets, metric end wrenches, feeler gauge set, straight and phillips screwdrivers, needlenose pliers, metric allen wrenches, 1 1/4" or 32mm socket, Black silicone...  
A pan to catch the coolant...clean rags to stuff in intake ports...**

I also used a 1/2" drive 18V impact wrench, and a 1/4" electric "impact" ratchet... and you REALLY ought to have a **torque-wrench**, because you have to pull 3 head bolts on each head to get the top-section off...

You do NOT need any gaskets, and if you are careful can save and re-use all the O-rings, but you will need a tube of **black silicone**...

The engine must be removed from the frame, this procedure is outlined in the Suzuki Marauder Service Manual (Page 3-2), but there ARE a couple shortcuts...

First, you do not have to remove the right side foot control from the frame, they can stay on the frame section that you have to remove to pull the engine... this alone should save you a good 10 minutes.

Second stuff clean rags or paper towels into the intakes where the crabs were.

You ALSO do not have to pull the front sprocket, if you can get the chain off without doing it... if you run a 16 or 17 tooth front sprocket, then the front sprocket WILL have to come off!

With the engine out of the chassis, you need to pull the spark-plugs, before pulling the plugs use compressed air to blow any dirt that collects around the plugs so it won't fall into your motor.

Then you need to pull the top off the heads (they separate under the top "cooling fin"... ) remove the small square aluminum "valve covers"( be carefull of the o-ring gaskets) , this is done by removing all visible bolts on the top of the "head", including the 2 hidden by the valve covers, the 2 that hold the chrome cover on each head that are also 8" long head-bolts, and one other long head-bolt, and they even hide a single socket-head bolt in there, that you have to remove... and there's also a "vent plate" in the rear head, and a water passage on the front that need to come off... it's pretty obvious...

On all but the head bolt (the long one) and the bolts that hold the 2 chrome covers on each head, you can leave the bolts IN the holes, so you can get them all back into the same spots, and save some worry and time...

After removing the cam covers clean all the extra black silicone from it and the head...

Prepare the new cams .. USE PLENTY OF THE INCLUDED CAM BREAK-IN LUBE!!!! (in the same position as the old one, and you DID put the new pins into the new cams, right?) WATCH THE CAMS - THE FRONT HAS AN "F" AND THE REAR HAS AN "R" CAST INTO IT!

With the head cover off (do one head at a time) you can now see the cam...

Remove the left side allen plugs used to rotate the motor when doing valve adjustments.

Rotate the motor CCW to where the arrow on the front cam is pointing forward and parallel to the head. Loosen the cam bolt you can get at by flattening the cam lock. Rotate the motor so you can remove the other cam bolt by flattening the cam lock. Rotate the motor back to where the cam arrow is pointing front and parallel to the head. Remove the last cam bolt and lock.

**NOTE: BE VERY CAREFUL NOT TO DROP THE CAM BOLTS INTO THE ENGINE.**

**NOTE: DO NOT ROTATE THE MOTOR** (remove the tool you used to rotate the motor..**NOW**)

Pull the cam gear off the cam and use a coat hanger or stiff wire to hold the gear from falling into the engine. Remove the cam and install the lubed up Webcam, with the arrow pointing forward and parallel to the head.

Using a small long screwdriver hold the release ratchet on the cam tensioner rod and a larger one to force the rod all the way in and to jam it that position. If you don't do this you will not get the gear back on the cam. Put the cam gear back on the cam and install the bolt with lock loosely.

Rotate the motor to install the second bolt and lock, torque that bolt to 15Nm / 11 lb-ft.

Rotate the motor back to tighten/torque the first cam bolt. Using a flat screwdriver bend the locks up to hold the bolts. Remove the screwdriver that you used to jam the cam adjuster open.

Rotate the engine CCW so that the cam arrow is pointing to the REAR and parallel to the head.

Before you set the head-cover (the cam followers are mounted into these!) you need to back off the valve-adjusters... a 10 MM wrench and either needle-nose pliers, or SpacerJim's cam tools (soon to be available!) just break the nuts loose and back the adjusters out of the followers quite a ways... the new cam is bigger!

Bolt down the head-cover, and re-torque the head bolts...

**These torque settings are for the bolt size not the hex head size.**

M10 Initial 25 Nm / 18 lb-ft ( the two long bolts)

Final 38 Nm / 27.5 lb-ft

M8 25 Nm / 18 lb-ft

M6 11 Nm / 8 lb-ft

Adjust both sets of valves to .004 inches as per the manual... then re-install the little aluminum "valve covers".

Do both cams, and both sets of valves, and get it all back together, and re-install the the engine as per the manual(Page 3-8), making sure to re-fasten everything you have un-done. (I had to undo the brake-light actuator cable, to get to one engine mount bolt)

This is a great time to change your anti-freeze (use MOTORCYCLE TYPE antifreeze!) and if you had any REALLY stuck bolts, or REALLY lose bolts, use anti-seize or thread-locker as needed on re-assembly...

Once the engine is in the frame, and all is hooked back up, including wiring, controls, carbs, etc, it is time to start the bike... and you HAVE to idle the cams in right! this is CRITICAL to cam life!

Here's what the cam manufacturer says: " Do not idle below 2000 RPM for 15 minutes." I did this, but did more... I used the racing engine cam-break-in...: start the bike, and up the idle to over 2000 RPM... then every 30 seconds to one minute, vary the idle speed, anywhere from the 2000 RPM minimum, up to about 4400 RPM, so as to change properties of the break-in regularly... and I broke it in for 20 minutes or so... during this process, keep a sharp eye out for oil and antifreeze leaks.

After break-in, shut the bike down double check for leaks, if you find everything is ok, then GO RIDING!

Note: on MY install, I followed the manual for valve adjustment, and it was way off! the thing barely ran! SpacerJim will be putting a "valve adjustment" how-to up in his FAQ on <http://www.spacerjim.com>, that goes into a bit better detail, and helps make this easy...

I hope this helps everybody, thanks for reading, Hemi/SpacerJim

#### Valve adjustment Procedure.

Remove the left side allen plugs used to rotate the motor when doing valve adjustments.

Rotate the motor CCW to where the Front intake valves are just closing. Then with a flashlight, looking into the inspection hole, rotate the engine CCW until the Front timing mark is in the center of the hole. Adjust both sets of valve to spec.

Rotate the motor CCW to where the Rear intake valves are just closing. Then with a flashlight, looking into the inspection hole, rotate the engine CCW until the Rear timing mark is in the center of the hole. Adjust both sets of valve to spec.







