Adjusting Yamaha XJ Valve Shims - All but Maxim X

With the engine cold, remove the valve cover. Using feeler gauges, measure and record the clearance of each valve with the lobe opposite the shim and bucket. The feeler gauge should slide in and out easily, with a slight resistance.

The bucket on the intake valves is red, and on the exhaust valves blue. The camshaft lobe is marked with red or blue dots. The cam lobe opposite the valve must be pushed down fully.

Before turning the valve shim tool, rotate the engine so the cam lobe pushes the shim and bucket down fully.

The valve shim tool in place (the bolt provided was a little long, and shimmed with a nut and washer to prevent damage). The small notch in the bucket is used to pry the shim out. It is NOT for locating the adjustment tool. Rotate the bucket so the notch will be accessible when the bucket is depressed.

Once the tool is in place, rotate the engine so the cam lobe rotates away from the tool. This is important! Rotating the cam lobe toward the tool will cause damage! The bucket and shim should be held down by the tool as the lobe is rotated away, allowing the shim to be popped out of the bucket with a thin screwdriver.

A magnet, tweezers or small needlenose pliers will be required to extract the shim from between the camshaft and the bucket. Re-installation is the reverse: slide the shim back into place (numbers down!) and press. Make sure it's straight in the bucket; it will snap down fully when the camshaft lobe is rotated over it.

The thickness of the shim is encoded on the back. For example, this once read "Y270", meaning it was 2.70mm thick. The "Y" is also important -- it means the diameter is correct for a Yamaha XJ model. I was once given shims without the "Y" and told (by the service manager) that they were just aftermarket shims. Actually, they were Suzuki shims, and didn't fit properly!

If the number is not legible, a direct measurement will be required. Look up the shim and valve clearance on the chart in your manual to determine the required shim. For example, let's say on this particular machine, the required clearance is 0.11 to 0.15mm, but the measured clearance only 0.08mm (blue circle). When checked, the installed shim was a 'Y205' (red circle). Looking these up shows the replacement shim should be a 'Y200' (green circle). This is only an example. There are 2 different charts for each bike, one for intake valves (carburettor side) and one for exhaust valves (exhaust pipe side). Make sure you are using the correct chart for your valve and model. Shims are re-usable! Let's say #1 intake valve has a Y275, but needs a Y270. #3 exhaust has a Y270, but needs a Y265. All you need to buy is a Y265, because you can move the existing Y270 from #3 exhaust to #1 intake.

I keep a record of all my installed shims, so I don't have to remove them to check the size every year. It makes life so much easier -- or at least it would if I could remember where I put it. :-)