

8-VALVE GUZZI ENGINES: ADJUSTING VALVE CLEARANCE

Posted on the Guzzitech.com forum by Pete Roper: December 2008:

Pic 1:

Pry off the stupid little badge. Be careful, they wash off with a steam cleaner so they don't need much prying!



Pic 2:

Undo the 3mm hex bolt that holds on the HT lead cover and remove it.





Pics 3A - 3B - 3C:

As you can see my plug caps are manked up. This is because they are incredibly soft, even with great care i managed to tear the rubber they are made of so the best idea would be to use forceps to remove them, I didn't have a set and paid the price. New HT leads, with caps, cost \$88 a side here, ridiculous! so mine are now lashed up with silastic and insulating tape. Sure it's ugly, but it works and you can't see it. But for others who don't want to screw up like I did? Get forceps to get the caps off and then tie a loop of twine around the sealing rings on the plug cap. It can be hidden under the HT lead cover and used next time to xtract the cap without risk.





Pic 4A - 4B:

Using an extension and plug socket, extract the plug.



Pic 5

Undo the 4 rocker cover retaining bolts.



Pic 6:

Lift off the plastic bling and note that there are 'Tampons' beneath the screws, Yes, that's what they're called in Italian, it translates to 'Plug' There are these sealing washers under all four bolts but on the rear pair where the bling is they go ABOVE the bling.



Pic 7:

Don't loose the front pair either.



Pic 8:

The rocker cover can now be lifted off; the gasket is a nitrile/viton type and is re-useable.

Now repeat this operation on the other cylinder head. Now we can get to the valve adjust.



Pic 9:

Pry out the rubber bung from the front of the alternator belt cover.



Pic 10:

Using a 24mm socket and a ratchet turn the nut, (Which is on the end of the crank.) **CLOCKWISE** as viewed from the front and watch the valve gear. Each cylinder is a separate operation, it matters not a jot which one you start with. Watch the inlet rocker open the inlet valves and then shut them. You now know that the piston is ascending the bore one the compression stroke.



Pics 11A - 11B:

Poke something long and clean, (A drinking straw is good, I use an Allen key T-bar but I've done this for years and know what to expect.) down the plug 'ole and feel the piston as it rises. Once it seems to slow down as you turn the crank you know you're getting to the top of the stroke, keep turning until you feel the long, clean thing start going down again, now jiggle until you feel that you are at the highest point. You CAN take the timing bung out of the RH side of the crankcase and look for the TDC mark on the flywheel if you want to be super-exact to the book but the IMPORTANT thing is that both the tappets, (Cam followers.) should be on the BASE CIRCLE of the cams. Anywhere 80 degrees or more either side of Top Dead Centre will be on the base circles but if you are within a few degrees of it you know you're pretty right.

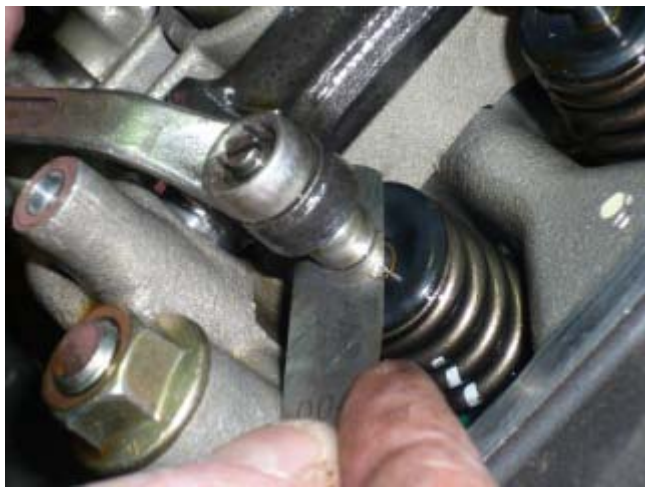
Getcha feeler guages out. 0.1 inlet and 0.15 exhaust is the go, or 4 and 6 thou if you're an old fart like me



Pic 13A - 13B:

I'm using the pick to point to the lash-cap that sits on the end of the clearance adjusting screw and the top of the valve. The clearance is measured between this and the stem of the valve.





Pic 14A - 14B:

Try and slip the feeler betwixt the lash-cap and top of the valve. Because the cap *wobbles* like a ball and socket/hip joint on the adjuster it is important to give it a bit of a wriggle. If it still won't go in you need to unlock the locknut (9mm nut.) and wind out the adjuster a bit. Then turn the adjuster, by finger at first, until the feeler guage is a smooth sliding fit. You shouldn't have to brace your foot against the bike and tug but neither should it simply slip out. I find tightening the adjuster finger tight and then nipping up the nut will usually result in a pretty good fit as long as the adjuster doesn't tighten as you tighten the nut.



Pic 15:

If necessary use a screwdriver in the slot of the adjuster to hold it while using the spanner to nip up the nut.

It is very important to remember that these are teeny-weeny little screws. They do NOT need to be tightened to buggery to hold their place. A gentle 'Nip' with a short spanner is all that is required. If you can't judge what might be suitable for such an application? Take it to someone who can.

Repeat the adjustment on the three other valves. The inlets are set to 4 thou the exhausts to 6 as the exhausts obviously run hotter and will expand more than the inlet valves.



Pic 16:

Note that the plug orifice is sealed by an o-ring. Inspect this carefully and have a couple of spares on hand in case of damage. You don't want your plug-ole filling with oil. Note pre-formed Viton/nitrile rocker cover gasket. I use a bit of rubber grease on the internal o-ring just to help it slip over the *tube* in the head.



Pic 17:

Replace rocker cover and ridiculous plastic bling. Don't forget the tampons!



Pic 18:

Tighten down the rocker cover screws.



OK, that side is done, (You can do either side first, it matters not a jot.) you now go round to the other side, which you will of completed steps 1 to 4 on already and repeat steps 5 to 18. The con-rods share a common crankpin so TDC on one cylinder is NOT the same as TDC on the other. Just think of the engine as two single cylinder motors for the purpose of tappet adjustment and treat each one separately.

Pic 19:

Add a bit of Nickel-coat or silver based anti seize to the plugs.



Pic 20:

And re-install them.



Pic 21:

Press home the plug caps and reposition the HT leads.



Pic 22:

Re-install the HT lead covers.



Pic 23:

Put back in the shitty little badge.



Pic 24:

Re-install the bung on the front of the belt cover.

Finally check that you haven't done something stupid like leave the ratchet on the end of the crank, you can account for all your tools, (None left inside!) and that all the fasteners etc are clean and tight.

Now bugger off and ride.....



All this info is given in good faith. If you can't work out which are the inlet valves and which are the exhaust valves or only have three bent screwdrivers, a sawsall and a big pair of vice grips I DON'T suggest you try it but it is easily within the ken of anybody with enough mechanical aptitude to turn on a tap without hurting themselves.

I DO though state that if you screw up it is YOUR fault, not mine. So consider carefully.

Pete

Subsequent discussion on the Guzzitech.com forum:

Have you noticed the clearances increasing or decreasing over the miles on your Griso?

I normally see them increase on the old pushrod bikes. Valve train wear I assume. And I see them slightly decrease on my Centauro. I assume valve seat wear.

Neither is good or bad, just curious.

Wayne Orwig

Wayne, my experience with the 8V has been same-same as yours with the Cent. Initially the clearances closed up very rapidly during the first 5,000Km. Now they seem to have 'Settled' down and when I inspected them again for this photo-essay at approx 9,500Km, (Last checked at 5,000.) they had closed up just a tiny smidgen, only really detectable by using a 3 and 5 thou guage as a Go/No Go tool rather than simply using a 4 on the inlet valves. That sort of difference could be down to something as simple as the engine not being stone, motherless, cold when I did them at 5,000.

As I said, initially the clearances closed up fairly drastically, that is why I suspect that some if not all of the Stelvio cam failures may be down to poor service rather than any true mechanical/metalurgical/engineering problem. My advice to people is to get their shop to check them, (Or do it themselves!) at the first service at 800Km/500 Miles then again at 5,000 and then again at 10,000. My GUESS is that after this 10,000Km checks will be perfectly sufficient. I intend to keep checking mine more regularly so I can form some sort of idea of what is 'Normal'. if people are willing to trust my judgement on that it should be a good baseline.

Pete

Should the engine be "stone cold" just prior to tappet adjustment?

Nick

Yes, although obviously ambient temperature means that consistency is pretty much impossible. I'm not completely hysterical over this like some people but I'll always make sure that the machine has cooled down to the point where you can't feel any heat radiating from the motor when you stand next to it and placing your hands on the heads can only give you a very vague inkling the engine has been run that day. Usually leaving it for a couple of hours in cool weather is adequate, three or four in warm weather. You certainly don't just turn it off after a ride and then do the valve lash. I guess one wouldn't want to cool the engine off to under temperatures that are habitually observed where one rides, that is, if there's an effect of temperature on the clearances! Is there - and do they increase or decrease with temperature? As the engine heats up the gaps diminish in size as the parts expand. Some motors it is actually specified that the gaps should be set hot.

Pete