DUCATI TECH TIPS

DESMO TWIN VALVE ADJUSTMENTS

Note: We have misplaced the envelope that contained this piece and we are unable to credit the writer since the article submitted did not contain his name and address. Our apologies. We would appreciate it if this individual would contact our office with his name and address so that we may refer any inquiries about this article to him.

I have developed a simple and accurate method to measure and adjust the closing rocker clearances on a Desmo. According to several articles I've read there is no way to do this except by "feel" (i.e. closing collar just turns), but the following procedure is more precise and involves no trial and error. Perhaps old time Ducati wrenches know all this anyway, but maybe the info will help someone.

Tools: You will need an accurate mictometer (0-25mm) and set of feeler gages 0.05-0.20mm in increments of 0.01mm (Mitutoyo makes a nice set); it is easier to work in mm. First step is to measure all existing valve clearances - engine cold, cylinder under check at TDC on compression - ignition stroke. On the 900SS remove battery and sidecovers. Remove rocker covers on cylinder heads. Do NOT remove offside camshaft bearing plate yet, this has to be in place for accurate readings otherwise the camshaft can deflect slightly and throw all your readings off.

Measure clearance from rocker arm tip to valve opening cap with feeler gage. (x mm say). It is important to pull up on rocker heel. Feeler gage should be nice sliding fit. Next, depress closing rocker fork fully (push down on it with a short length of 1/2" aluminum rod which is soft enough not to scratch anything) and simultaneously pull up on opening rocker as above (you'll wish you had six hands here). Measure clearance to opening cap again (y mm say). Now your closing rocker clearance is simply y-z mm.

Obviously the first opening clearance (x mm) has the valve seated by the closing rocker return spring. For the second clearance you have added the closing distance by lifting the valve off its seat till the closing rocker heel contacts the cam lobe. Factory specs allow (y-x) = 0.00 to 0.02 mm. If you find (y-x) equals 0.00 then, to check that the closing and adjuster collar (shim) is not too tight, try to rotate it with firm finger pressure with its rocker arm pushed down to remove the spring pressure. If it does not budge you're in trouble and have to fit a smaller shim (any size which gives some play will do for the purpose of measurement and establishing a working reference point).

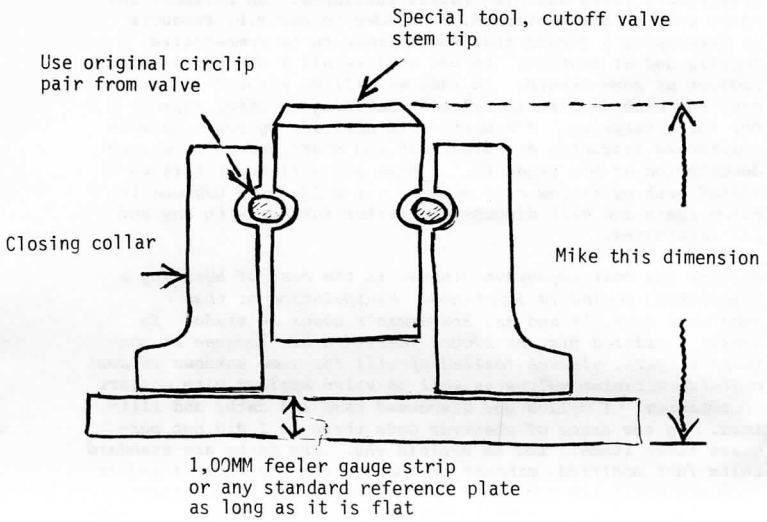
Repeat above procedure for all four valves (you say you want a four valve head?). Adjusting the opening clearance is trivial just fit correct size shim cap so the intake gap is 0.08 mm and exhaust gap is 0.12 mm (factory specs., or whatever). These shims come in 0.05 mm increments and can be ground to exact size. A word on grinding here - I use diamond impregnated stones which work beautifully (the hardened shims quickly wear a grove in carborundum stones). You can work by hand but be careful to keep shim flat on grinding surface.

Now for the closing collars (return caps). These are available in 0.20 mm increments so they have to be individually ground to exact size. The problem here is to accurately measure them. When you order a 1.2 mm closing shim say you get a shim where the distance from the bottom of the clip retaining groove to working face is about 1.2 mm. The production tolerances vary more than the assembly tolerances. There is only one way to measure accurately.

First, remove pieces as outlined in any manual - offside cam bearing plate, opening rocker spindles, rockers and end float shims (do not mix up). Sometimes the closing collars are stuck on their valve stems - turn engine over (sparkplugs must be removed or you may suck a loose valve in) till you see the appropriate closing lobe in the valve full open position. Depress closing rocker and jam it open with a wooden dowel which then gives you two free hands. Hold tip of valve stem with pliers and rap on collar with punch to break it free. Remove two wire clips and collar. DO NOT mix up the clips. You must measure new collars with the same pair of clips from valve you are working on and replace them on reassembly to their original valve - this way variations in clip thickness has no effect.

I made a special tool to measure closing collars. Cut off tip of old valve (with a good circlip groove) about 5 mm below bottom of groove. Now slip this in collar to be measured using the correct part of retaining circlips for valve in question. Be careful to rotate to seat tool fully. I place collar with tool installed flush on a 1.00 mm feeler gage and mike accurately from top of tool. Measure all old collars (4) this way. Add your measured clearances (y-x) and this gives the new collar sizes (provided old collars were to loose or you substituted loose collar for one which was originally too tight). Grind set of new collars to exact size and button 'er up. Before bolting up cam bearing plate tightly rotate engine several times (turn clear wheel in 5th gear) to center bearing plate.

I have set clearances with above method to ± 0.005 mm on all closing collars (well within specs). Only one tear down - assembly cycle is needed. Just measure carefully and do not interchange valve circlips.



EXCEPTIONALLY SMOOTH

I recently installed a set of S&W dual spring freon shocks with the 95-130 lbs springs. They perform even better than I had imagined. The ride is exceptionally smooth without being mushy, and yet they rarely bottom thanks to the very progressive spring setup.

Good luck and happy riding!

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