m VonBaden
mber
GS
ged: Mar 08 2004
sts: 4405
c: Northern
ginia

R1200 series 24K with lots of pics. NEW
#770480 - Mon Nov 20 2006 12:42 AM

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Since the last time I posted a 6K pictorial, I have notice that it was a bit thin on substance. So, when I went to do my 24K on Friday I decided to beef it up.

This is very picture heavy, but a decent step-by-step. I forgot a couple pictures, but you can figure it out from what I have here.

Hope this is useful to those who don't have access to a tech day.

The valve cover just getting started.

Pop off the plug wire cover. Just pull from the wire end. I use a screwdriver and it just pop's right off.

Then remove the spark plug wire. I use a screwdriver to simply pry it out. (I will try to take a picture of this later. I forgot here).

Loosen the valve cover bolts. The come loose, but do not come out all the way.

Then pull off the valve cover. Mine needed a little tap with the heal of my hand to break it loose.

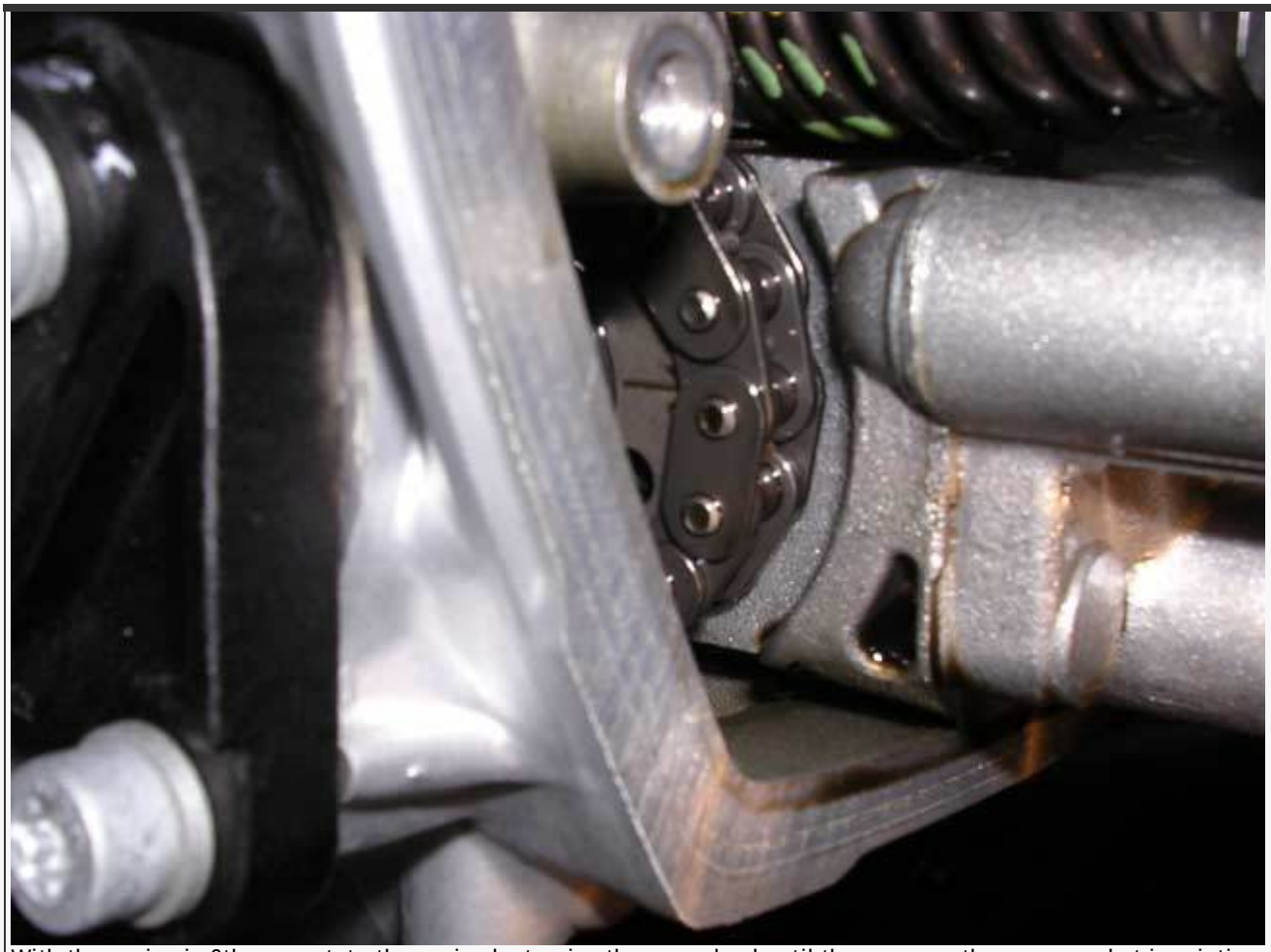
The Valve Cover removed. The drip pan is a cheap plastic one from the dollar store. I have been known to use a cookie sheet.

Note the small amount of oil. That is all that normally falls out when removing the valve cover.

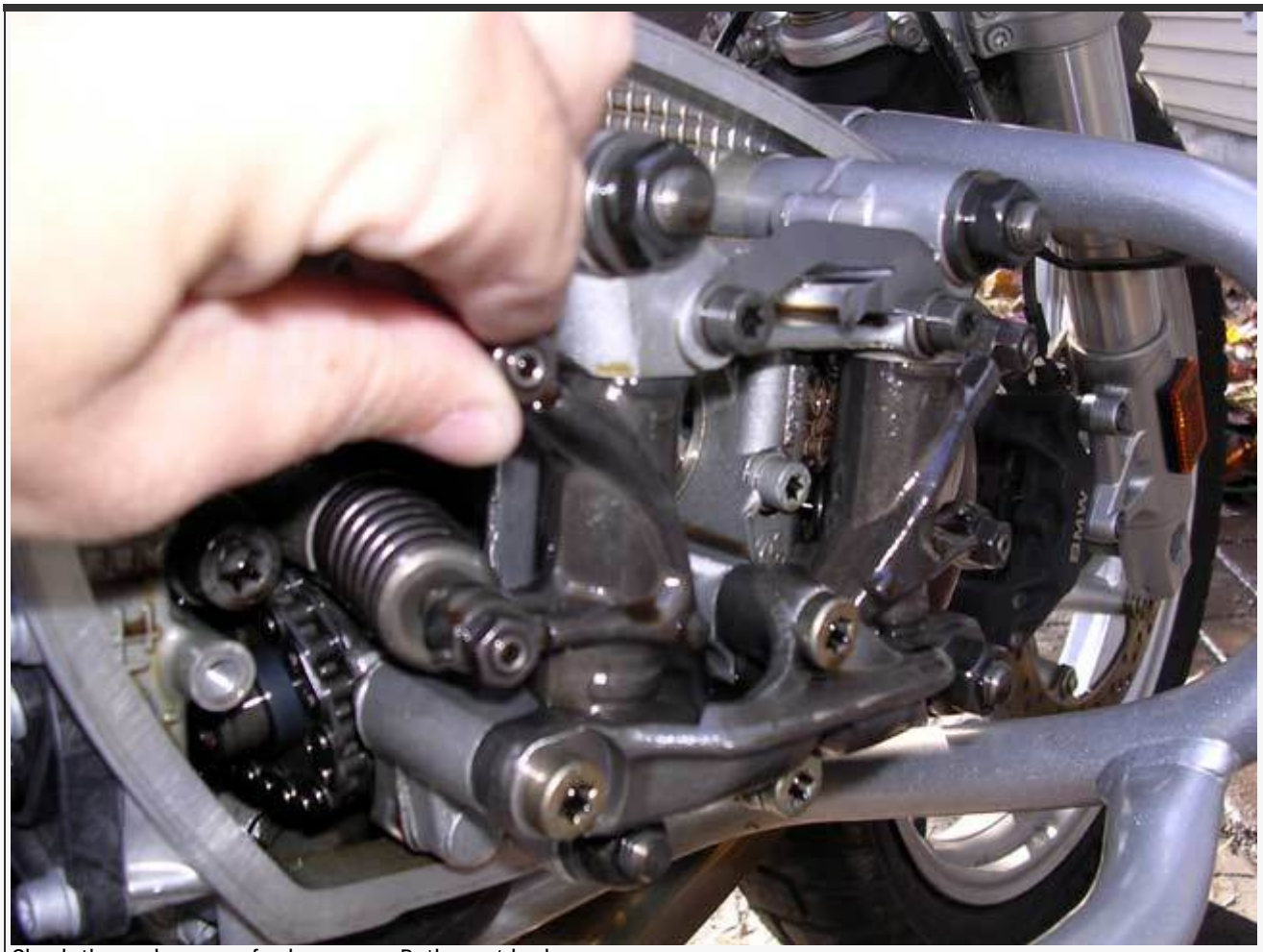
This is a special plug wrench. Actually a trimmed down Craftsman. It makes it easier to get the socket in and out.

Loosen the plug with the ratchet, then pull it out.

At this point you need to do the same for the other side. Take off the valve cover and remove the spark plug.



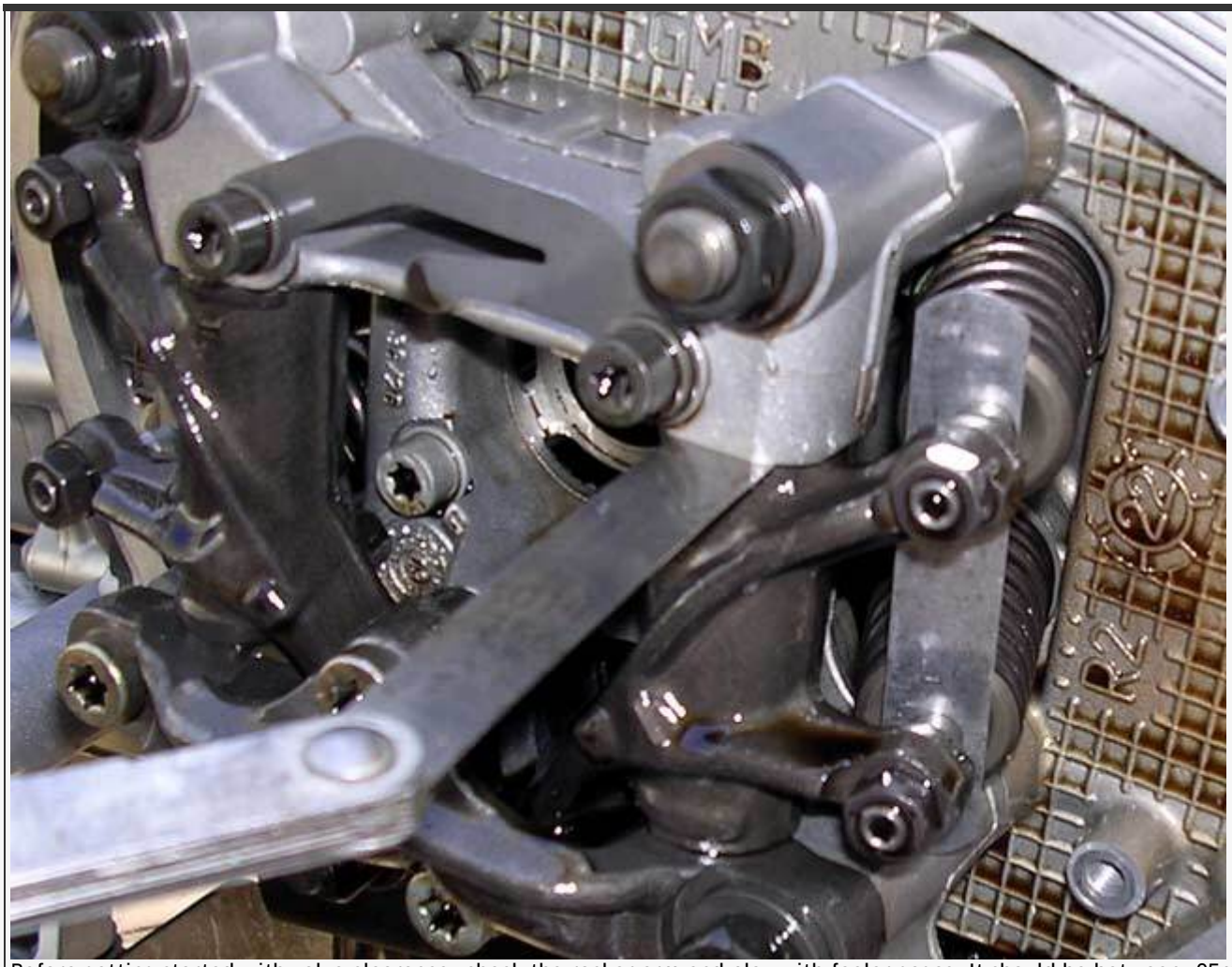
With the engine in 6th gear rotate the engine by turning the rear wheel until the arrow on the cam sprocket is pointing straight out.



Check the rocker arms for looseness. Both must be loose.

If not check the other side. Whichever side is loose is the side you start on.

In my experience the arrow correlates to the right side.



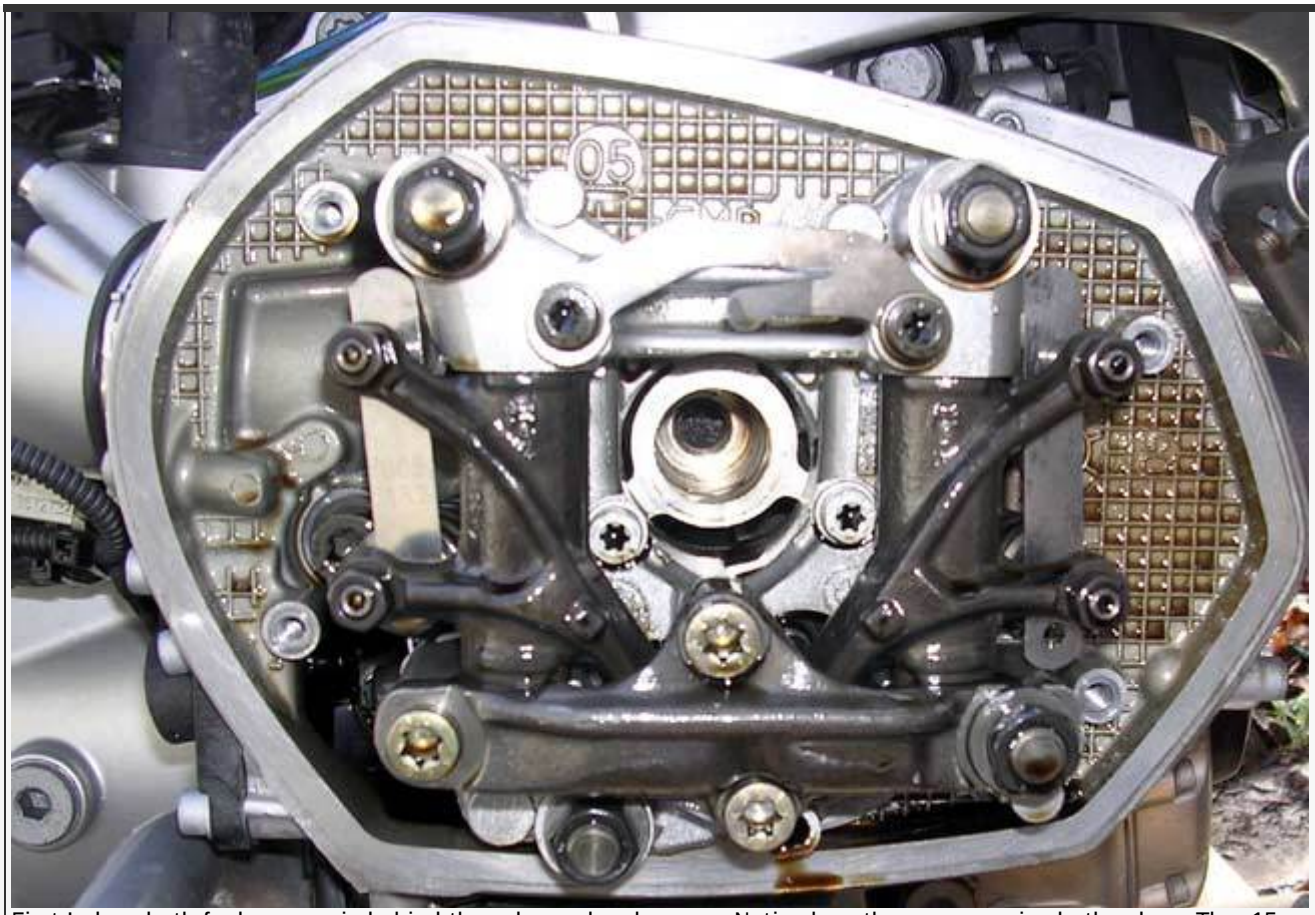
Before getting started with valve clearance, check the rocker arm end play with feeler gages. It should be between .05mm and .40mm

Note, if not, you need to adjust the gap by loosening the head and associated bolts, and tapping the rocker arm mounts until the gap is correct.

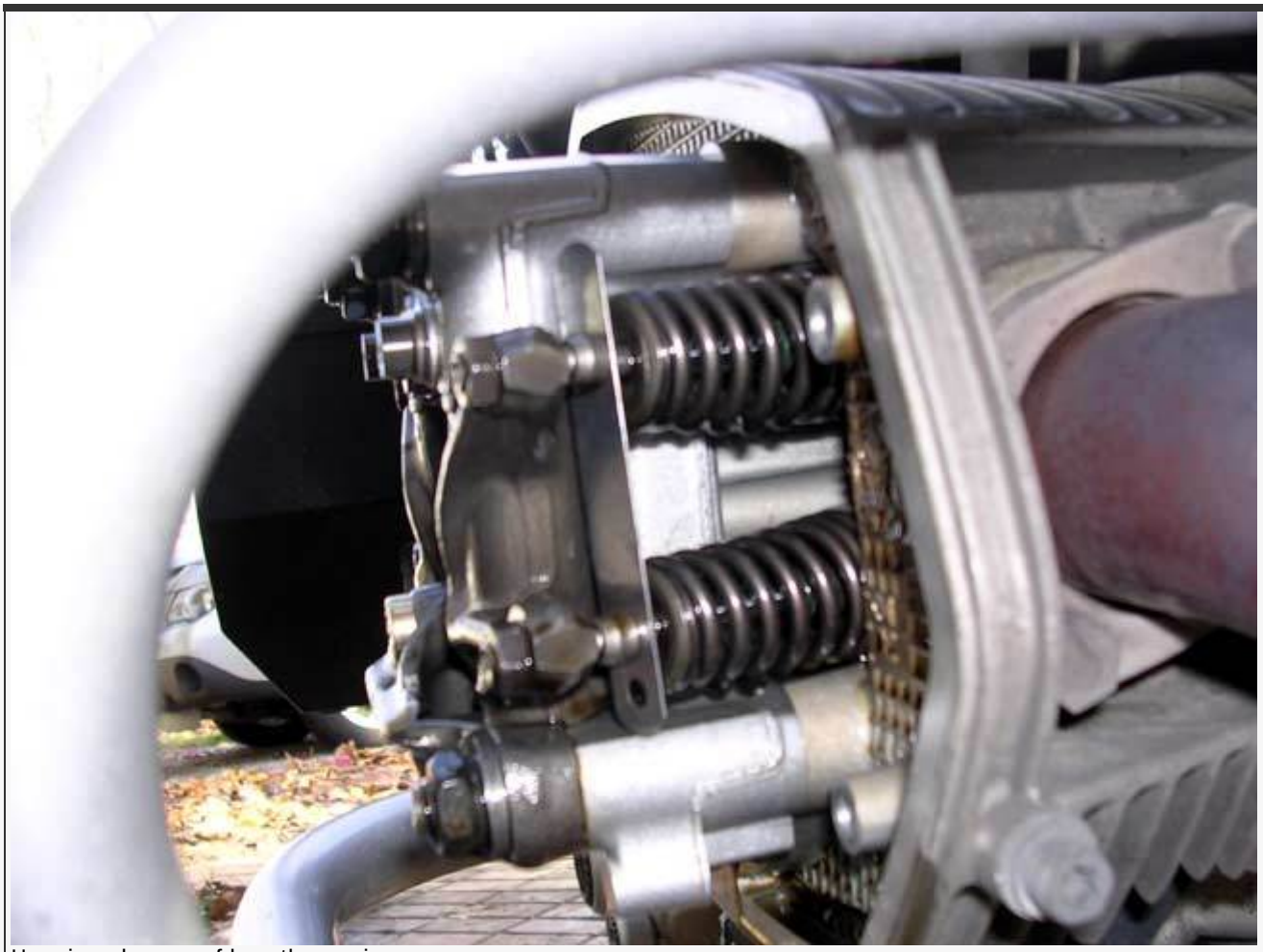
Using a .15mm feeler gage, and a .30mm feeler gage, I am ready to check valve clearance.

Note the .15mm gage is cut short for clearance of the head bolts.

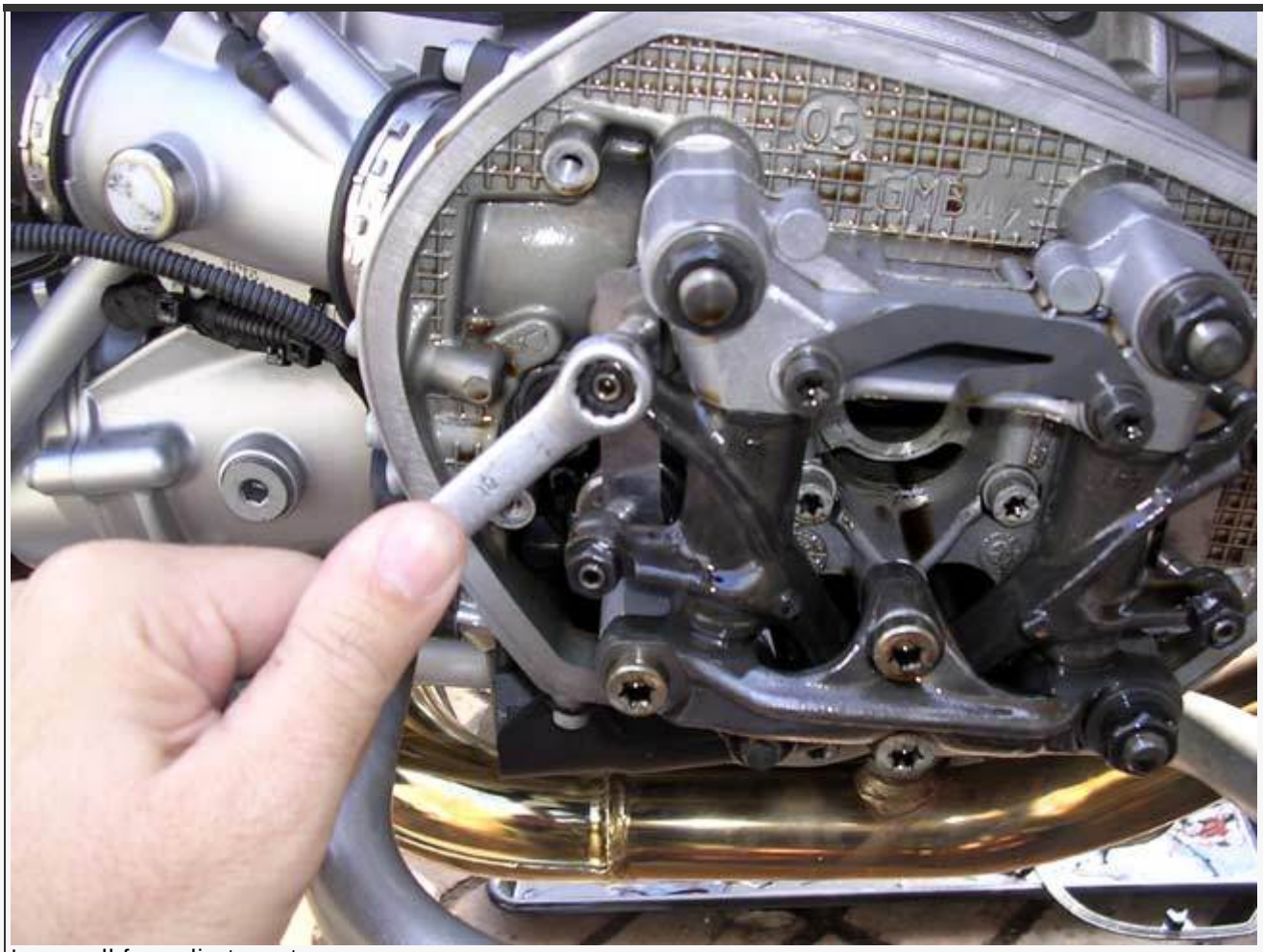
I use a modified version of valve adjustment. It is much simpler, and allows for very quick, but very accurate adjustment of the valve gaps. The book way is finicky, and frustrating.



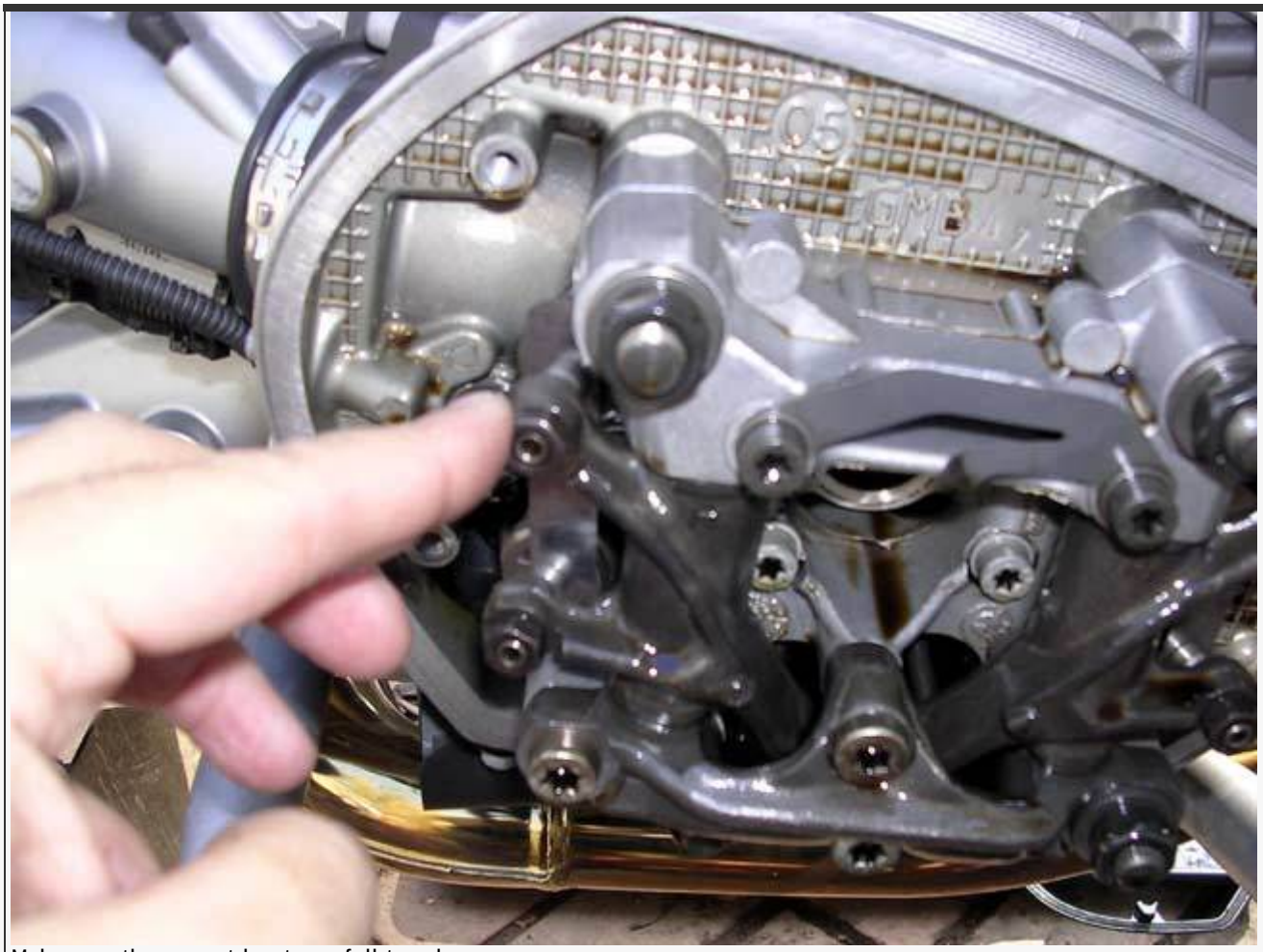
First I place both feeler gages in behind the valve and rocker arm. Notice how they are covering both valves. The .15mm on the intak
and the .30mm on the exhaust valves. Covering both at the same time helps with accuracy, and makes checking them after adjustme
easier.



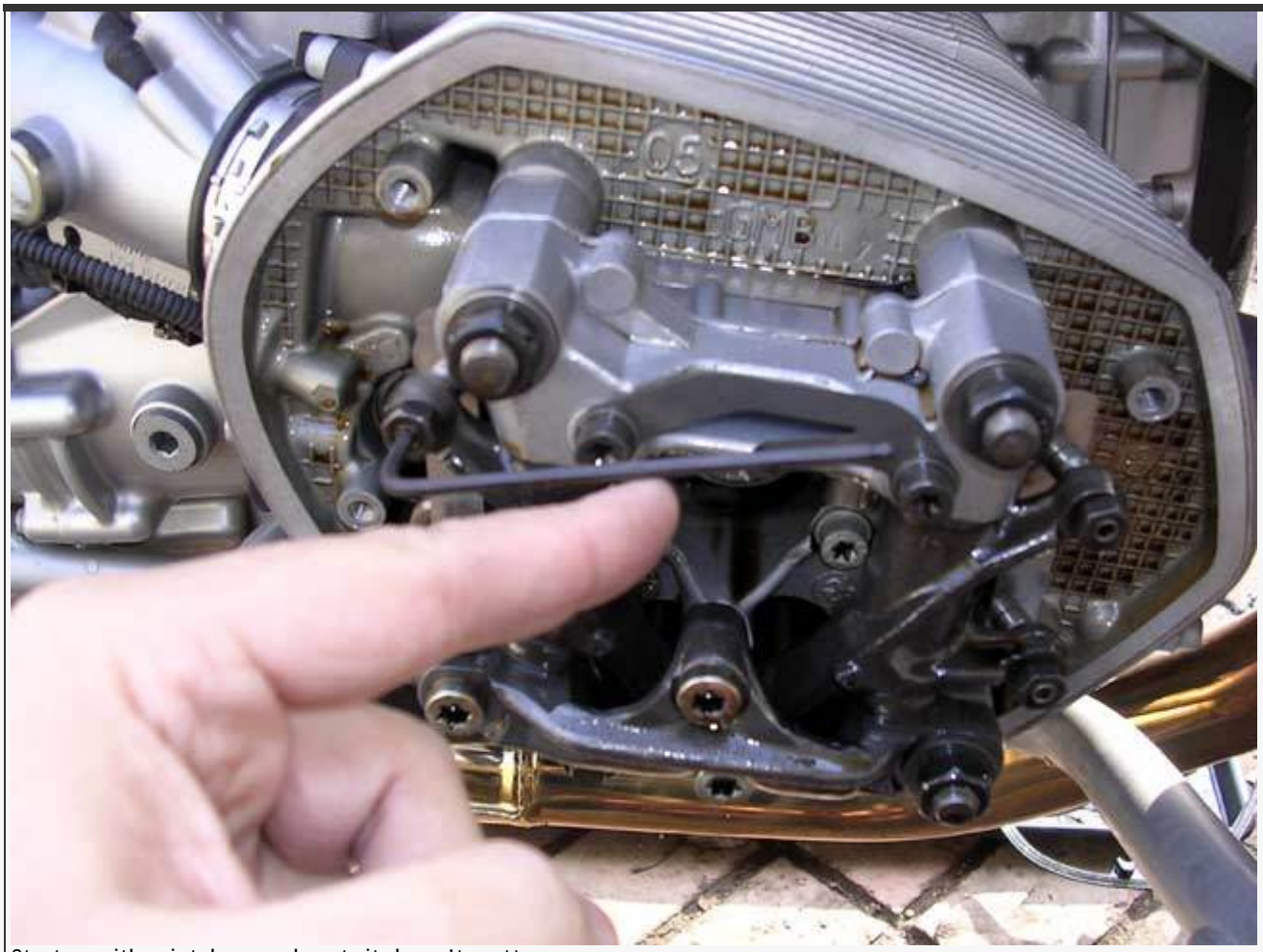
Here is a close-up of how they go in.



Loosen all four adjuster nuts.



Make sure they are at least one full turn loose.

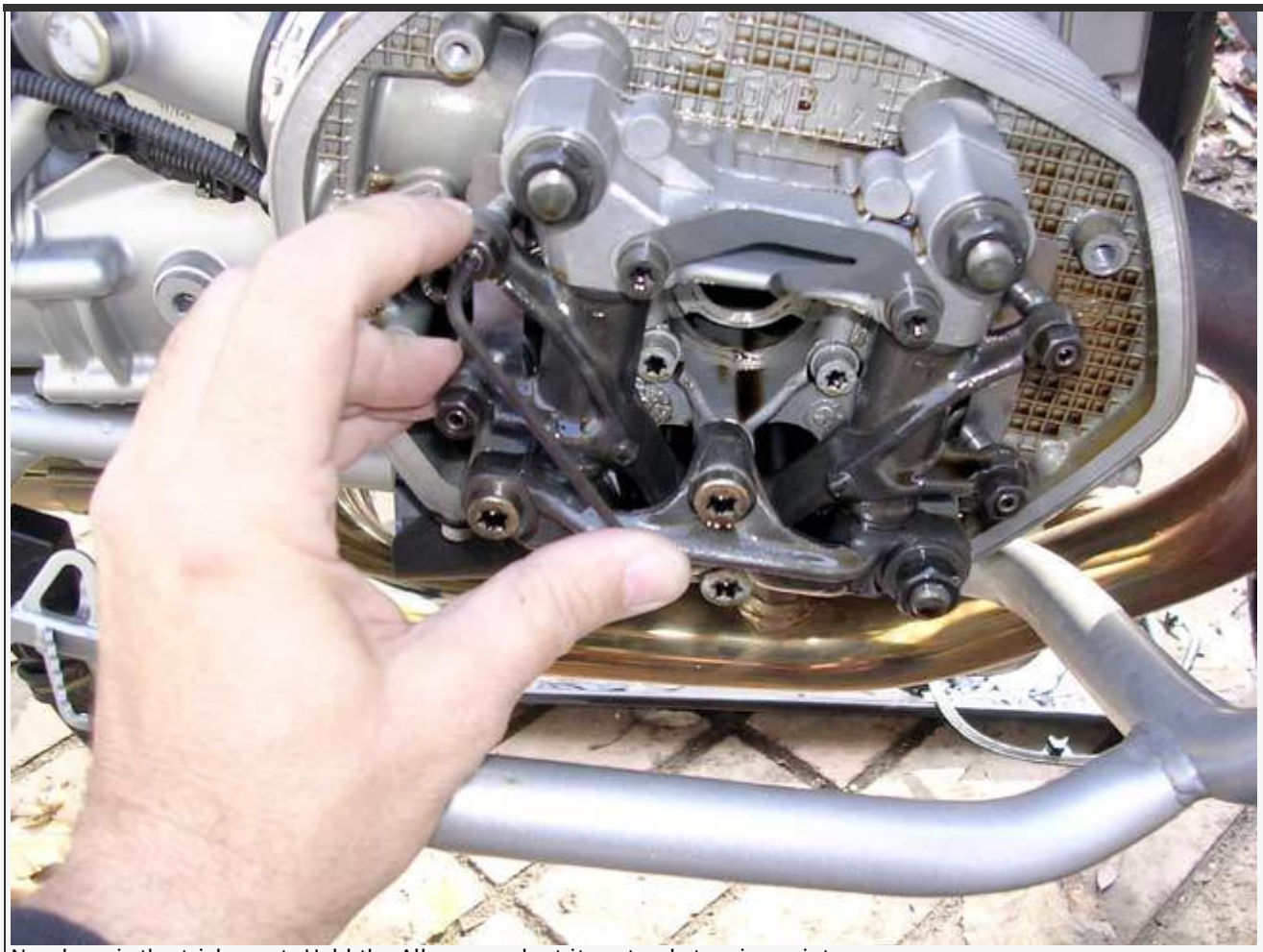


Start on either intake or exhaust, it doesn't matter.

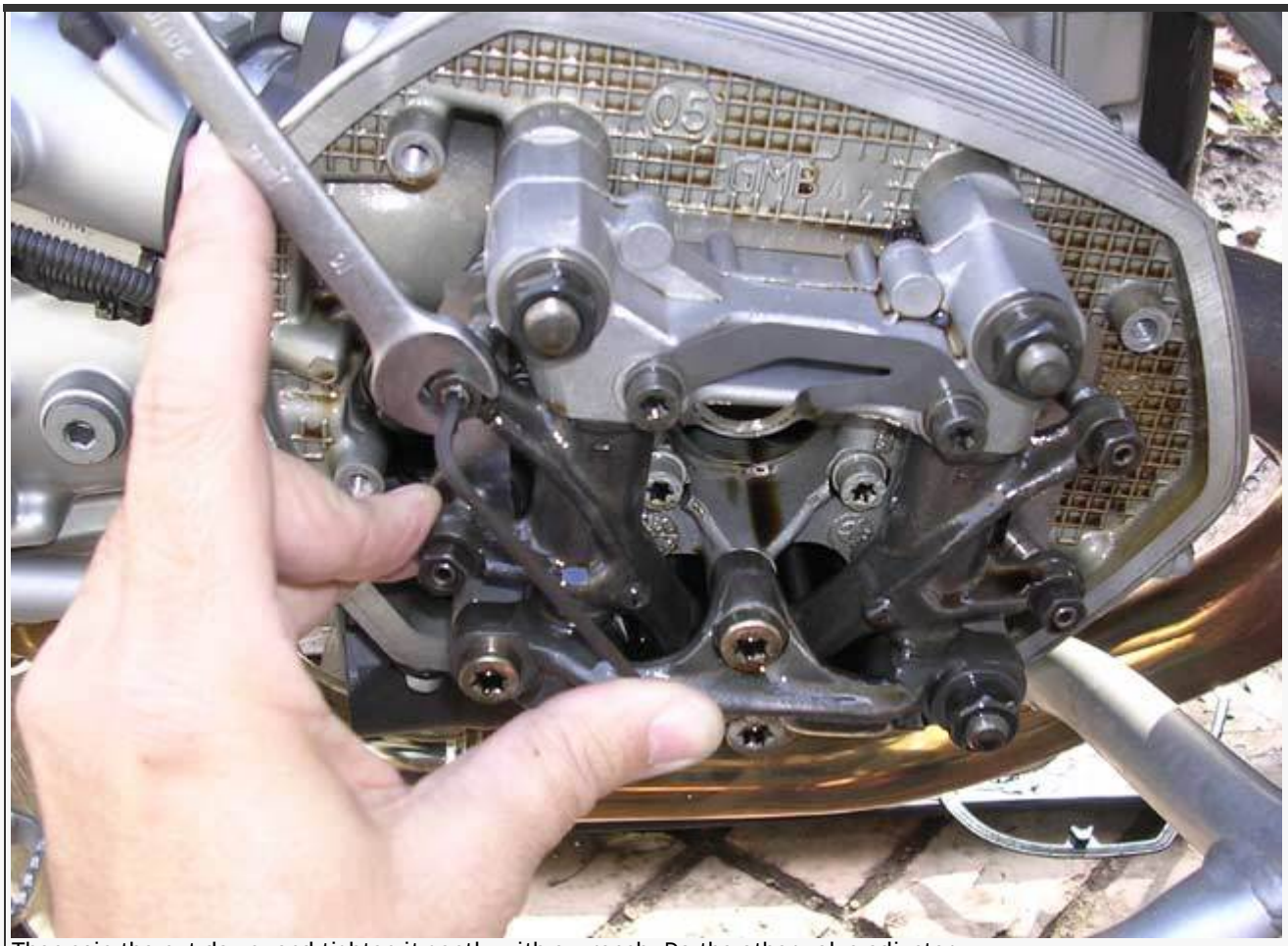
Place a 3mm Allen wrench in as shown. Make sure it is at about 2 O'clock and moves smoothly.

Hold it with your finger, them let it go. It should move about 40° or so.

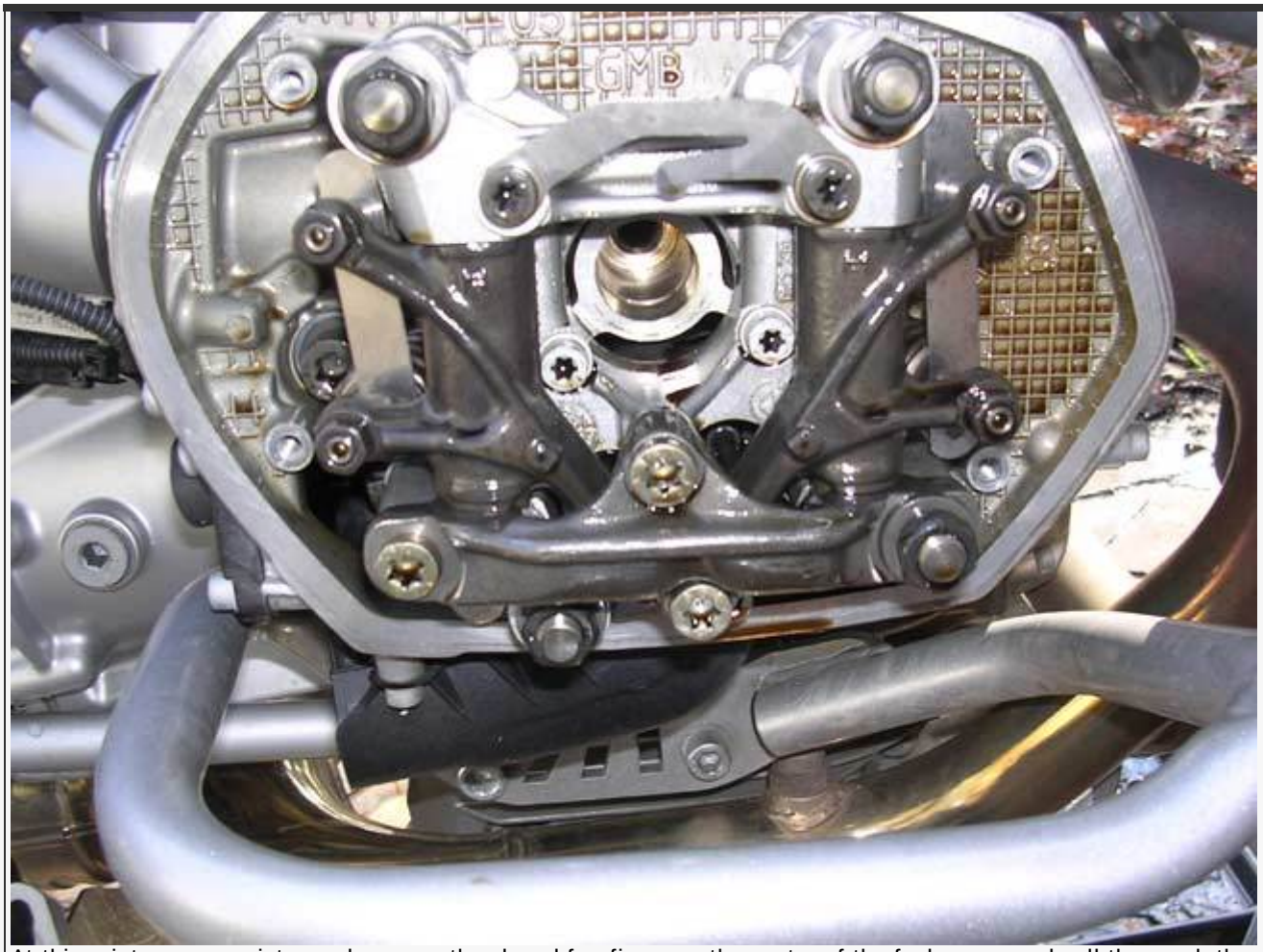
See it at the natural stopping point. This point varies, so do this several times to determine its natural stopping point. This tensions th
adjuster just right, and allows you to be consistent.



Now here is the tricky part. Hold the Allen wrench at its natural stopping point.



Then spin the nut down, and tighten it gently with a wrench. Do the other valve adjuster.

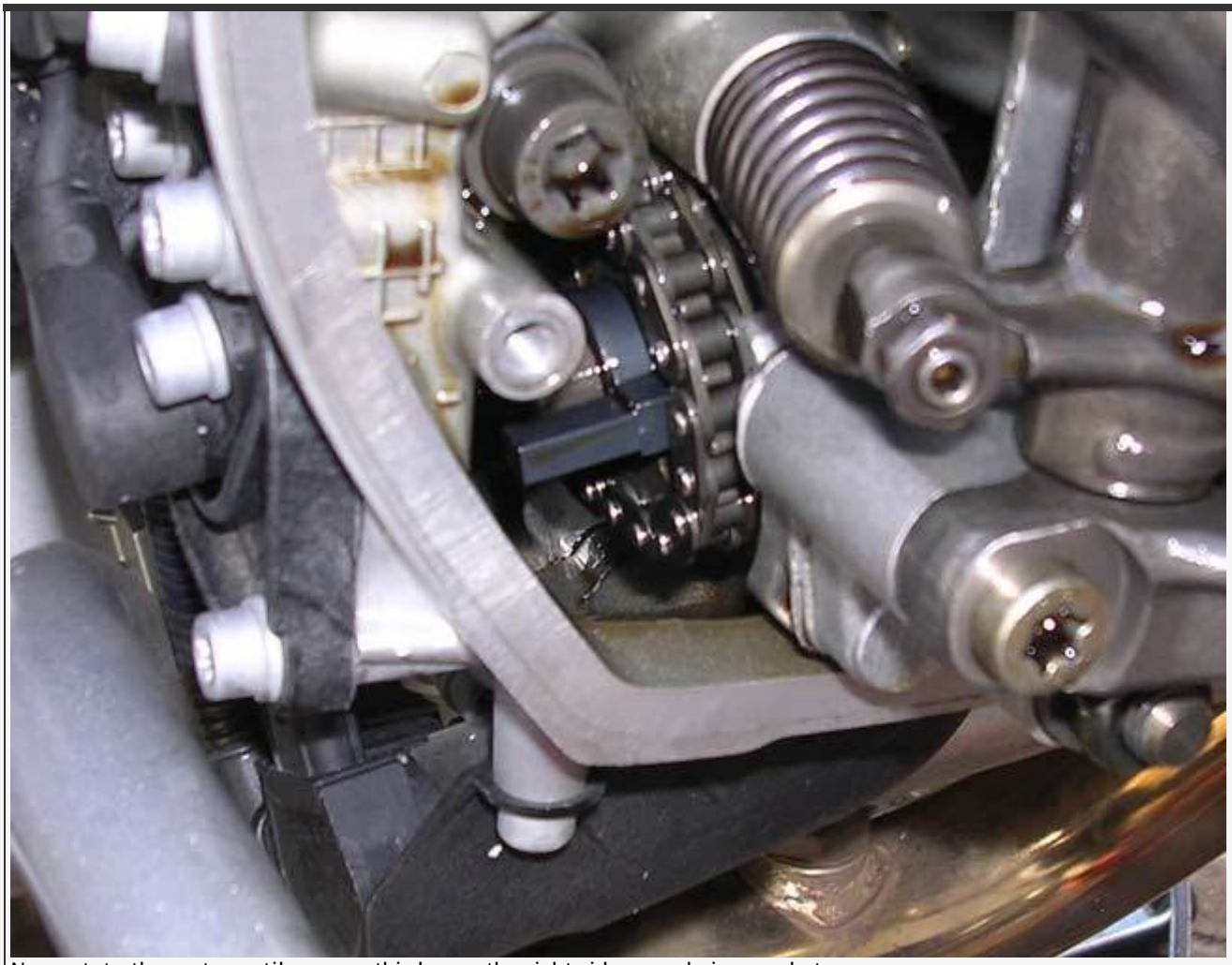


At this point, sorry no picture, place your thumb and forefinger on the center of the feeler gage and pull then push the gage in place. You should feel even drag on the feeler gage. If one valve is tighter than the other the gage will pull out crooked. Redo the tight valv It should feel pretty easy to slide the feeler gage in and out.

When done, tighten all the adjuster nuts, and retest the tension on the feeler gages.

Note: If you like you can use a torque wrench at 8nm, but wait until you get all the adjustments done, tighten the adjuster nuts gentl by hand, or with a torque wrench, then retest for proper adjustment.

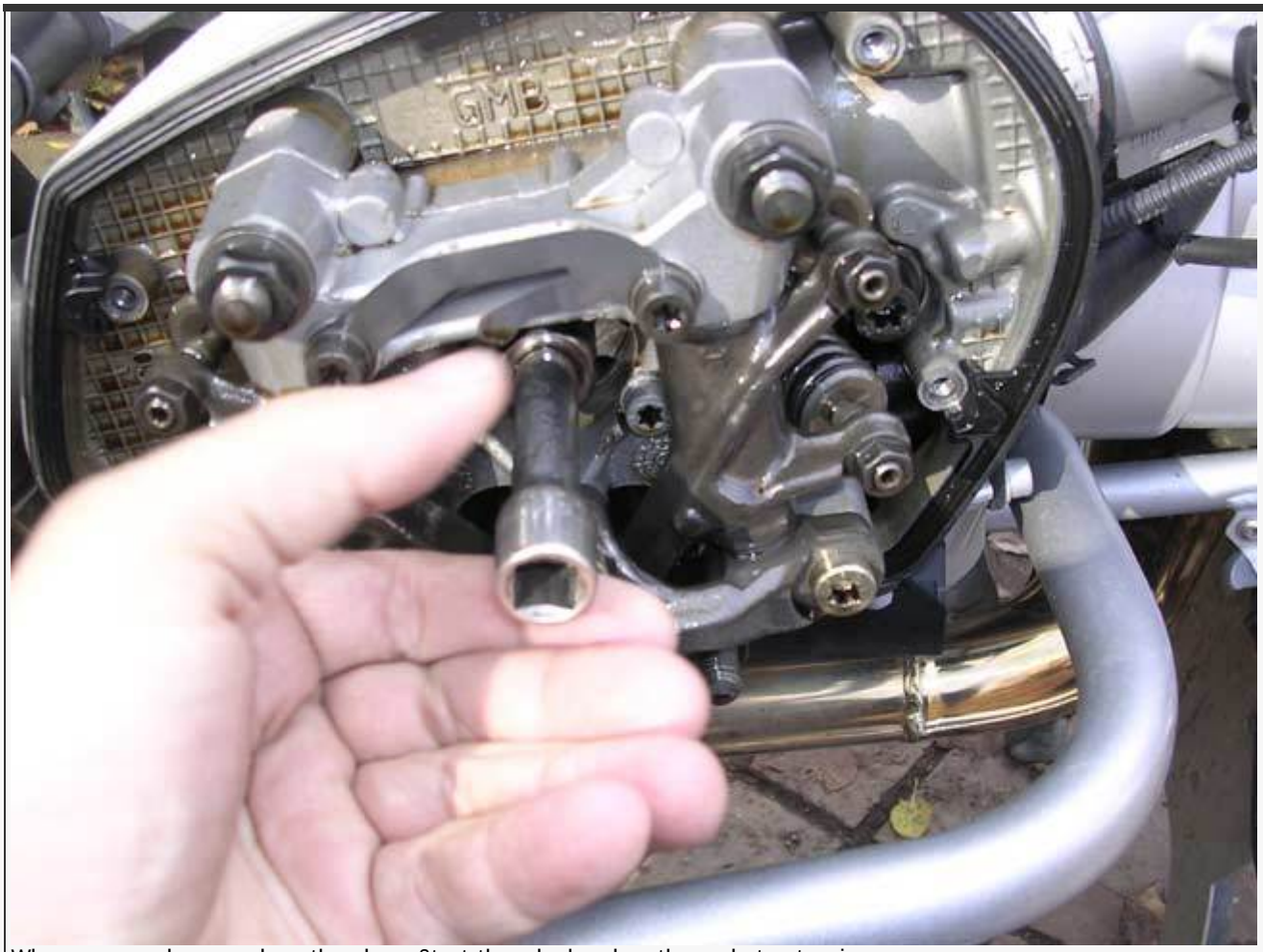
Remove the feeler gages.



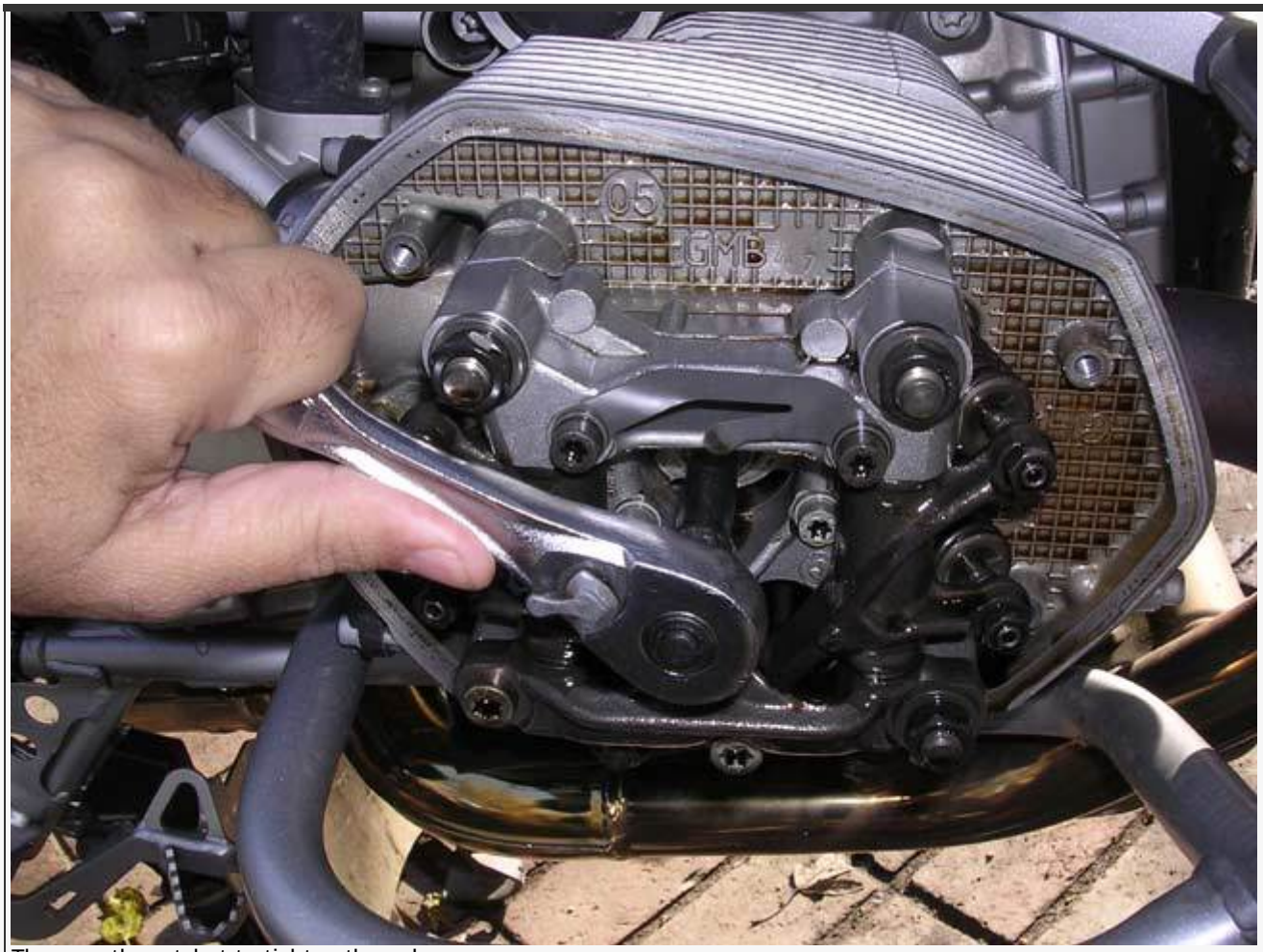
Now rotate the motor until you see this lug on the right side cam chain sprocket.

Check the looseness of the rocker arms. Both intake and exhaust should be loose. If not, rotate the engine until the lug comes around again and check.

Follow the same procedure for the left side of the engine.



When you are done, replace the plugs. Start them by hand on the socket extension.

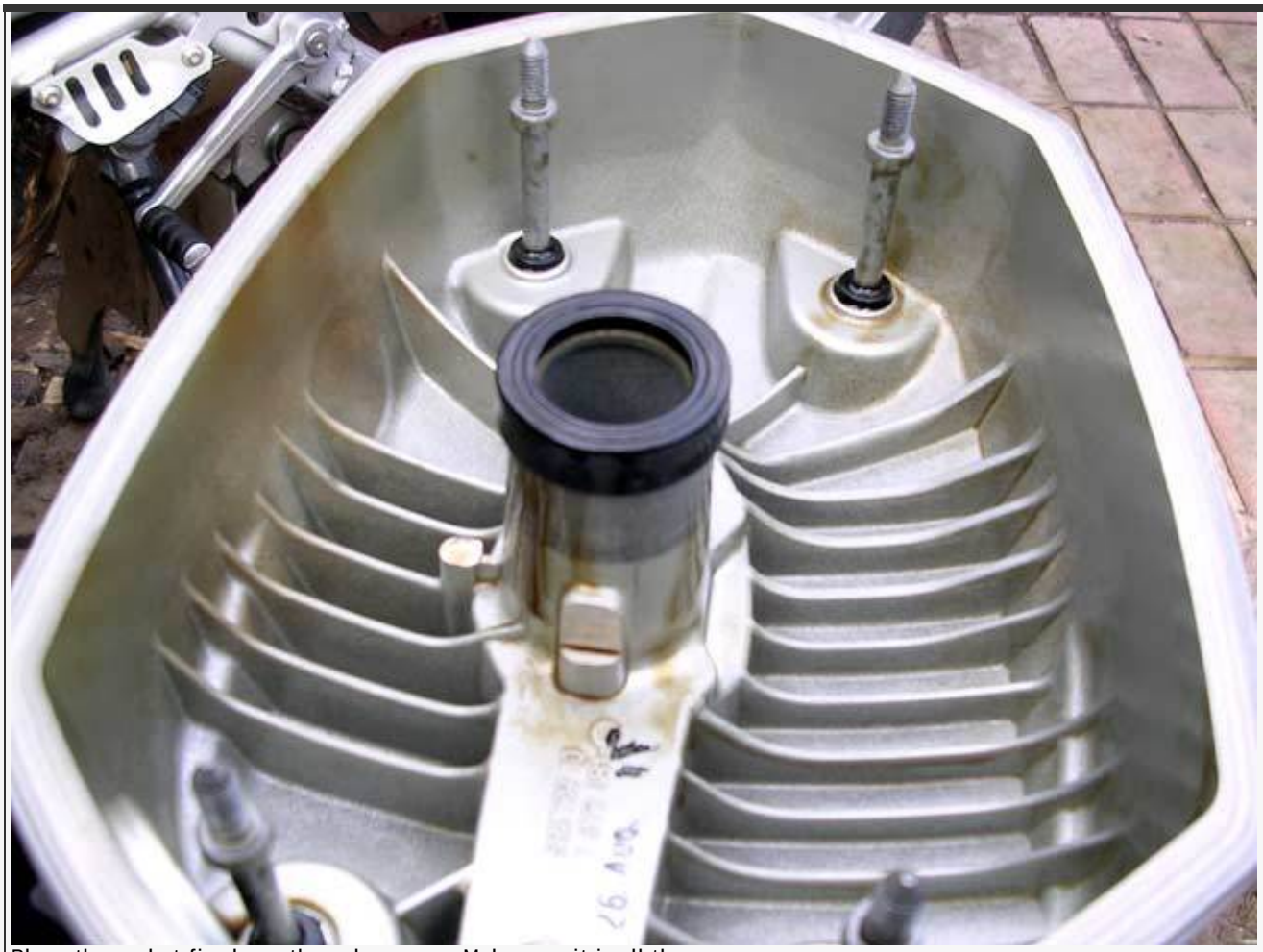


Then use the ratchet to tighten them down.

The torque spec is 23nm. I go with an easy stop and 1/8th turn.

Now we reinstall the valve covers.

First clean the center gasket, donut gasket. I don't worry about getting it dry, just clean.



Place the casket firmly on the valve cover. Make sure it is all the way on.

Wipe off the outer gasket.

Clean the head surface. Then place the gasket back on the head.

Now is the fun part. Push on the valve cover while aligning it with the spark plug hole. If for any reason you have to pull the cover bac
off even a little, pull it all the way off and replace the donut seal back on the valve cover. It is very easy for it to get partly off and it
WILL leak, and likely ruin the donut seal.

When all the way on, it should look like the picture.

Tighten all four bolts, gently turning them until they hard stop, then torque diagonally to 10nm. I just give them a gentle tug holding
the center of the ratchet.

Place the plug wire in place.

Push it in until it snaps in place. Sometimes it wont snap, but you will know it is in place because it will look like this picture.

Place the wire cover in place with the pointed end first.

Simply push it on until it snaps in place.

At this point you are done with the valve adjustment.

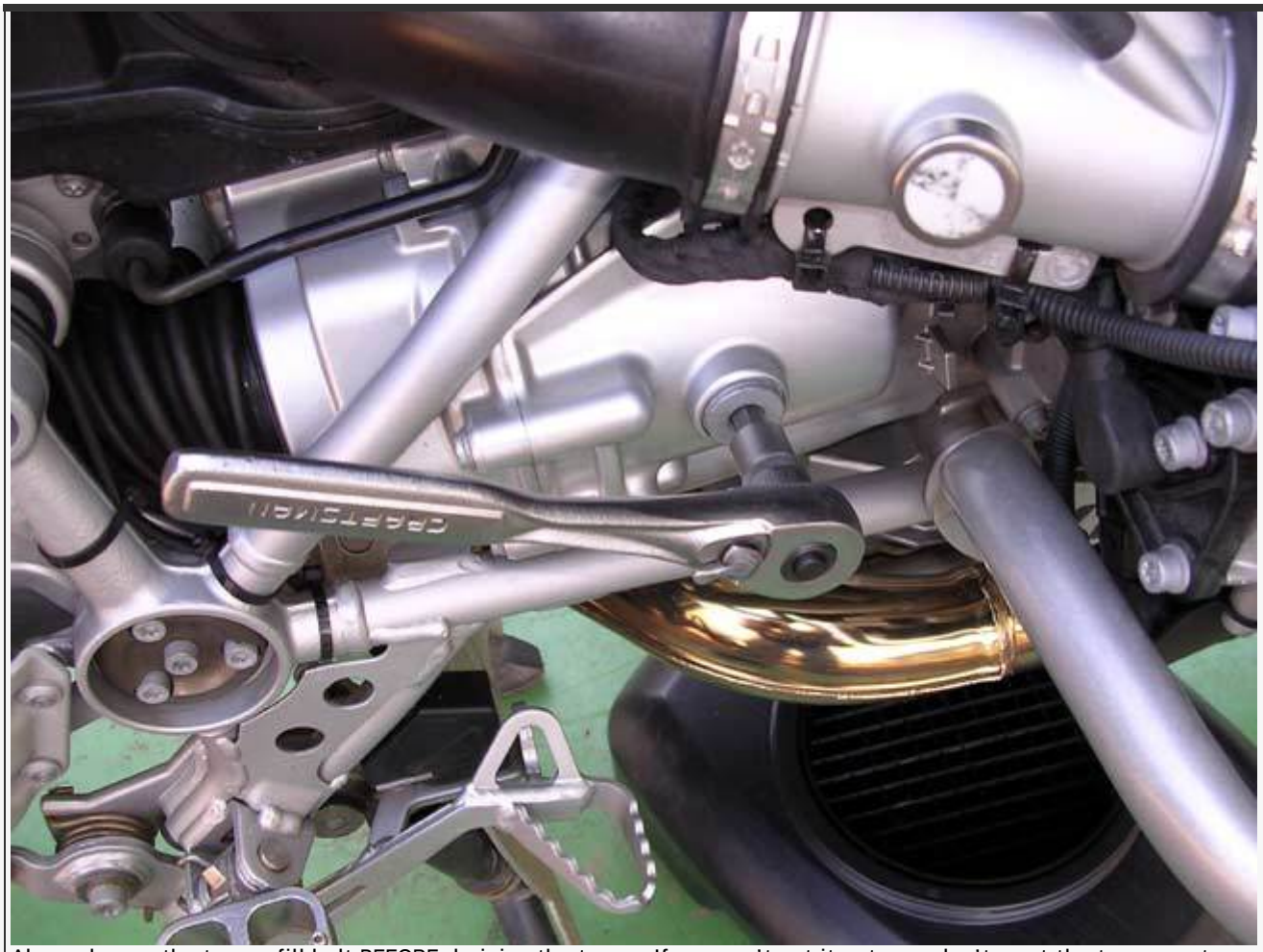
I took the bike for a spin, then adjusted the throttle body sync at 3500 RPM with a Twinmax. I will try to get pics of this procedure soon. I completely forgot to take pics when doing this.

Next we look at how to change the trans fluid and oil.

Note: I rode the bike and had it warm when I began.

On the GS remove the bash plate.

It takes a 13mm socket, and a 10mm socket. Simply loosen the nuts, and the 10mm bolt, and the plate will fall off.



Always loosen the tranny fill bolt BEFORE draining the trans., If you can't get it out, you don't want the trans empty.

The Allen is a 6mm.

The trans drain takes a 19mm socket. Just loosen and remove the bolt

Neither bolt was a magnetic kind.

Note: My trans fluid looked like new at 23,500 miles.

I used a funnel to keep the oil off the exhaust and center stand.

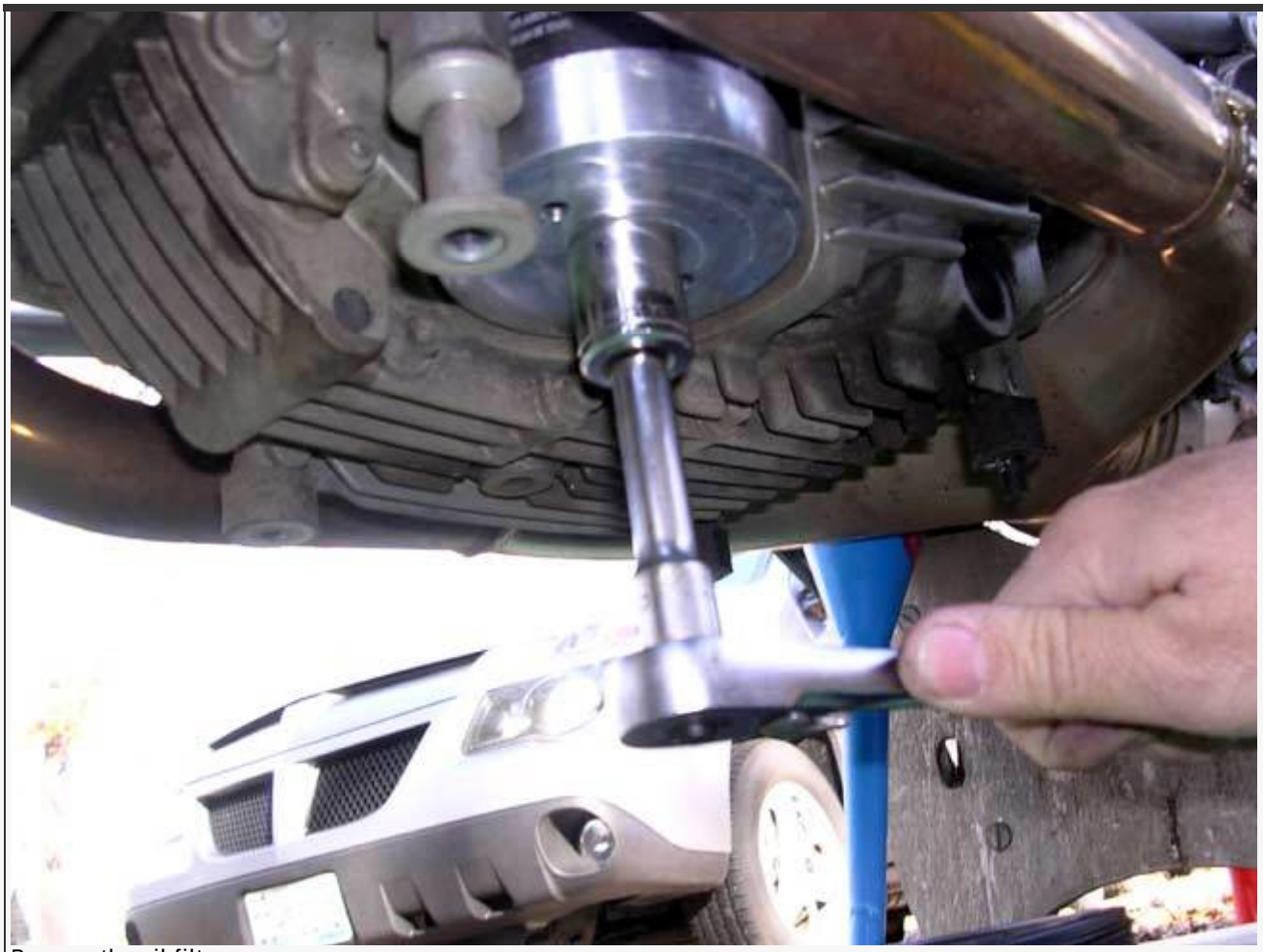
I let the trans drain for about 10 minute. Then I reinstall the drain plug (torque at 30nm, and filled the trans up with 75W140 syntheti gear oil. I used .8 liters, the spec is .7 to .85, or to the filler hole threads on level ground.

Reinstall the filler bolt and torque to 30nm.

Remove the filler cap on the engine. I use a TT, I think, filler cap removal tool.

Remove the oil drain plug.

Note: the oil comes out fast, so be ready with a drain pan, preferably with a screen to catch the nut if you drop it, and to allow a hig
oil flow.



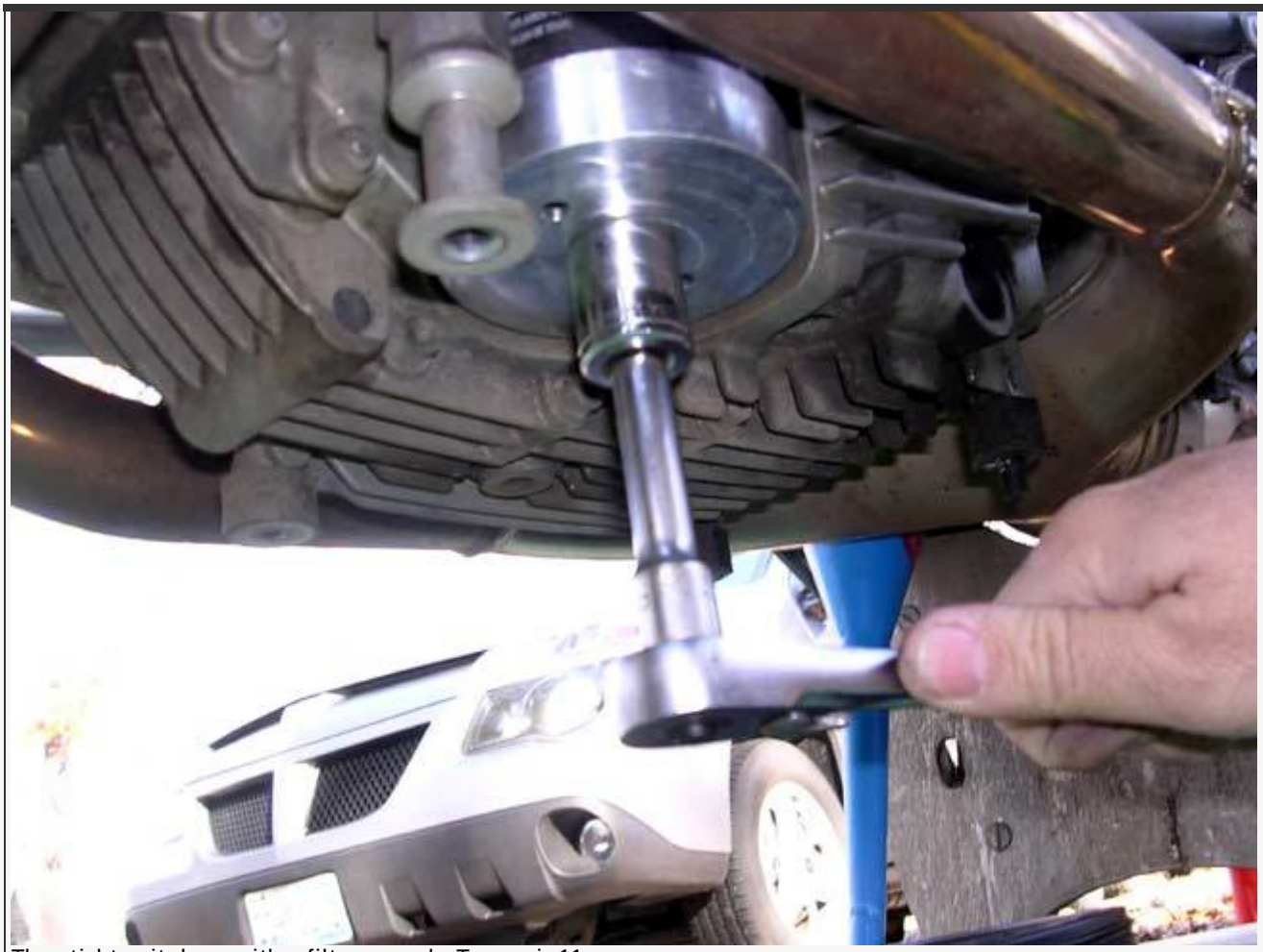
Remove the oil filter.

Note: The 1200 series takes a special wrench.

Clean the filter mating surface, and make sure the old o-ring seal came off with the filter.

I usually fill the filter first, using a little oil on the rubber o-ring to help seal it, and keep it from sticking next time.

Install the filter by hand first.



Then tighten it down with a filter wrench. Torque is 11nm.

Replace and tighten the drain plug. Torque spec is initial torque to 23nm, final torque to 32nm.

Fill the engine oil. At 24K miles you can safely use synthetic if you like. I used Valvoline 20W50 full synthetic.

The capacity is 4 liters, or just short of 4 quarts, about 3.75 quarts.

Reinstall the bash plate.

Wash the bike. You know you should at least every 24K. Makes sure you can find the leaks, and any loose parts.

Here are the tools I needed for this.

BMW Motorrad
Maintenance Schedule
R 1200 GS 0307 / 0317

Customer	Registration No.	Odometer reading	**00 00 119** **BMW Running-In Check**
Order No.	Date	Mechanic's signature	**once at 1,000 km (600 miles)**
Read the fault-code memory with the BMW Motorrad diagnosis system			☐
[BMW Integral ABS (partially integral), can be deactivated] Conduct bleeding test with BMW Motorrad Diagnosis System			☐
Change engine oil			☐
Tighten cylinder head			☐
Check valve clearance and adjust if necessary			☐
Check secondary spark plugs			☐
Check brake fluid level for front brake			☐
Check brake fluid level for rear brake			☐
Check throttle cable for smooth movement, rubbing, kinks and play			☐
Check tire inflation pressures and tread depths			☐
[Cross-spoke wheels] check tension of spokes and tighten if necessary			☐
Check lighting and signal system			☐
Conduct operating check of engine starting interlock			☐
Check synchronization of throttle valve cables			☐
Test ride as final inspection and function check			☐
Read the fault-code memory with the BMW Motorrad diagnosis system			☐
Confirm BMW Service by entry in onboard documentation			☐

*) **Invoiced as separate items** ☐ **Not part of standard service procedure**

UX-VS-2, 12.2003

BMW Motorrad
Maintenance Schedule
R 1200 GS 0307 / 0317

Customer	Registration No.	Odometer reading	**00 00 144** **BMW Service** **every 10,000 km (6,000 miles)**
Order No.	Date	Mechanic's signature	

Read the fault-code memory with the BMW Motorrad diagnosis system	☐
[BMW Integral ABS (partially integral, can be deactivated] conduct bleeding test with BMW Motorrad Diagnosis System	☐
Change engine oil	☐
Check valve clearance and adjust if necessary	☐
Check secondary spark plugs	☐
Check hydraulic clutch system	☐
Check front brake disks for wear	☐
Check front brake pads for wear	☐
Check brake fluid level for front brake	☐
Check rear brake disk for wear	☐
Check rear brake pads for wear	☐
Check brake fluid level for rear brake	☐
Check throttle cable for smooth movement, rubbing, kinks and play	☐
Check tire inflation pressures and tread depths	☐
[Cross-spoke wheels] check tension of spokes and tighten if necessary	☐
Check side support for smooth movement	☐
Check side stand for smooth movement	☐
Check lighting and signal system	☐
Conduct operating check of engine starting interlock	☐
Check synchronization of throttle valve cables	☐
Test ride as final inspection and function check	☐
Read the fault-code memory with the BMW Motorrad diagnosis system	☐
Confirm BMW Service by entry in onboard documentation	☐

*) **Invoiced as separate items** ☐ **Not part of standard service procedure**

UX-VS-2 12.2009

The maintenance schedules.

I didn't show it all, but I showed most of the steps.

These bikes are very easy to work on, and I completed the 24K in about 2 hours, while taking a lot of pictures.

Jim

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Post Extras:
R1200GS

m VonBaden
mber

ged: Mar 08 2004
sts: 4405
c: Northern
ginia

Re: R1200 series 24K with lots of pics. NEW [Re: Jim VonBaden]
#770481 - Mon Nov 20 2006 12:43 AM

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PS Feel free to let me know if I made any mistakes…

Jim

Are you a Rounder? Click here to find out!

Post Extras:
R1200GS