

It's not too bad to set the valves. It's the getting to them part that is the work.

Remove the seat and tank. Remove the radiator cap and then remove the 8mm headed bolt, with the copper crush washer, that's under the radiator hose that comes out of the front of the engine near the exhaust pipe. Have a bucket ready to catch the antifreeze. Once the antifreeze is out, put the drain bolt back in. Remove the radiator hoses and radiators.

Make sure everything is as clean as you can get it at this point. You don't want dirt dropping into the open valve covers. Remove the crank locking bolt. It's a bolt in the front of the motor but down low. It's got a thick copper washer under it. If you have a skid pan, you'll probably have to remove it to see the bolt. Take the washer off and start the bolt back into the hole but don't screw it all the way in.

You may want to disconnect the battery so that you can't accidentally bump the button and mess up your TDC setting. I never do that myself but some folks do. Just an extra precaution.

Remove the valve covers. Blow out the spark plug hole with compressed air and remove the spark plug. Now watch the cam lobes and valves on the intake/carb side of the head. Work the kickstarter until you see the lobes open and then close the intakes. There are two TDC's on a 4 stroke, remember, so make sure you watch the intakes to determine when you're on the comp stroke.

You probably won't be able to stop the cam rotation very precisely but that's okay. Stick a straw or ziptie (not the locking end) down the spark plug hole to show where the piston height is. Put the bike in 2nd gear and work the rear tire back and forth gently until the piston height indicator shows you the piston is at TDC. Then run the crank locking bolt in. Its shoulder should bottom out against the engine case without the thick copper crush washer.

NOTE: Unfortunately, the crank bolt will also bottom out on other places on the crank so you have to make sure you're very close to TDC before setting it. What I like to do is get the piston very close using a ziptie or straw. Then I remove the crank bolt and insert a regular phillips screwdriver and GENTLY work the crank back and forth just a hair until I "feel" the detent. Then I insert the screw and lock it down.

Check this KTM bulletin for valve clearance specs:
http://pws.chartermi.net/~jejb/pictures/ktm_valveclearance_bulletin.jpg

I use a motionpro tappet gauge to check the gap. I like the bent tip ones on this page. The price on the web page is for 6 of them but the guys at www.cyclezonektm.com usually carry them:
http://www.motionpro.com/servicetools_3.html

Set all 4 valves and make sure the adjuster nuts are tight. I use the .005 gauge. You should not have to turn the adjusters more than 1/3 - 1/2 of a turn at the most. If you do, you're either not at TDC or on the wrong TDC.

Then just button it all back up, reinstall the thick washer on the crank locking bolt, etc. When you put the anitfreeze back in, make sure you remove the head bleed bolt(s) first. It's an 8mm headed bolt with a crush washer located near the sparkplug hole on the 02. On the 03, there's another one on top of the right radiator. Pour antifreeze in until it runs out the lower hole. Reinstall the bolt and finish filling the radiators.

I've had no problems using the TDC method I described for my 01 400E. Just make sure you use something soft in the spark plug hole and don't insert it until just after you've watched the intakes close.

My 03 450E is harder to get to TDC, though, so I've had to use the flywheel nut method. It works well but is somewhat messy as oil comes out when the cover is removed and you

may need to have a gasket handy if the old one tears. If you tip the bike down so a hand grip rests on a bike stand, it takes the messy out of taking the cover off. Then, unbolt the cover and shifter and remove/set aside both. Turn the flywheel nut until the magnet just goes past the pickup coil. Watch the intakes, too. If the intakes have just closed, that's the correct stroke. Then do as above with a straw or ziptie to make certain of TDC and lock it down. Then put the cover and shifter (use blue loctite on the shifter bolt) back on and put the bike back on a stand for the rest of the job.