

## Barnett Spring Conversion for 'Liner

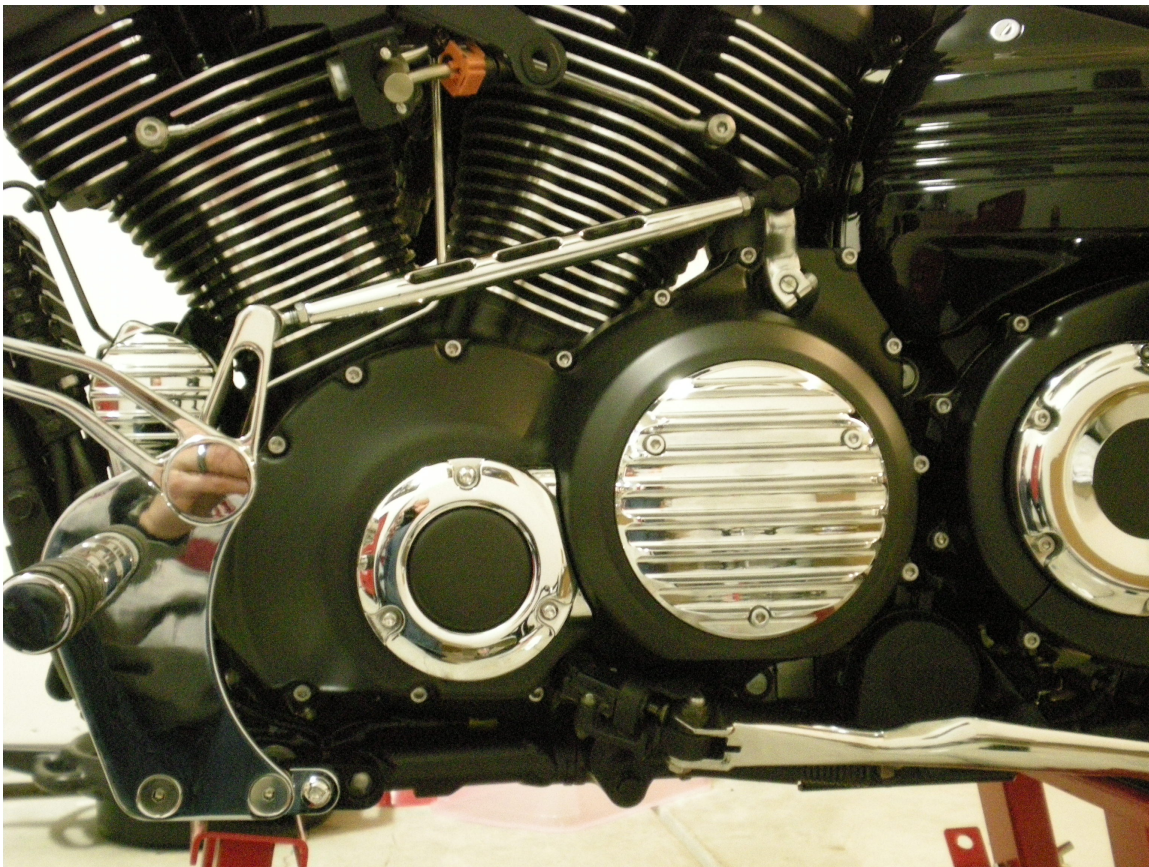
I installed Barnett's spring conversion on my last bike, a 2003 Warrior, and the difference was very noticeable. The Warrior always launched well, but the Barnett springs made wheelies easy and speed shifts smooth and sure. I like to run the 1/4 mile occasionally, and I think Barnett's clutch conversion is a definite improvement in off-the-line performance.

So, I was very happy to see Barnett come out with a clutch spring conversion kit for the 'Liner and I bought one right away. I had planned to complete the "double-up clutch spring" mod from Fxstein's blog, but decided to go with Barnett's kit. It's about \$160 for the kit.

The installation is pretty straightforward and Barnett's instructions consist of a simple diagram, but I thought I'd document the process for the Wiki, at least so people can see what to expect when they get inside the clutch case.

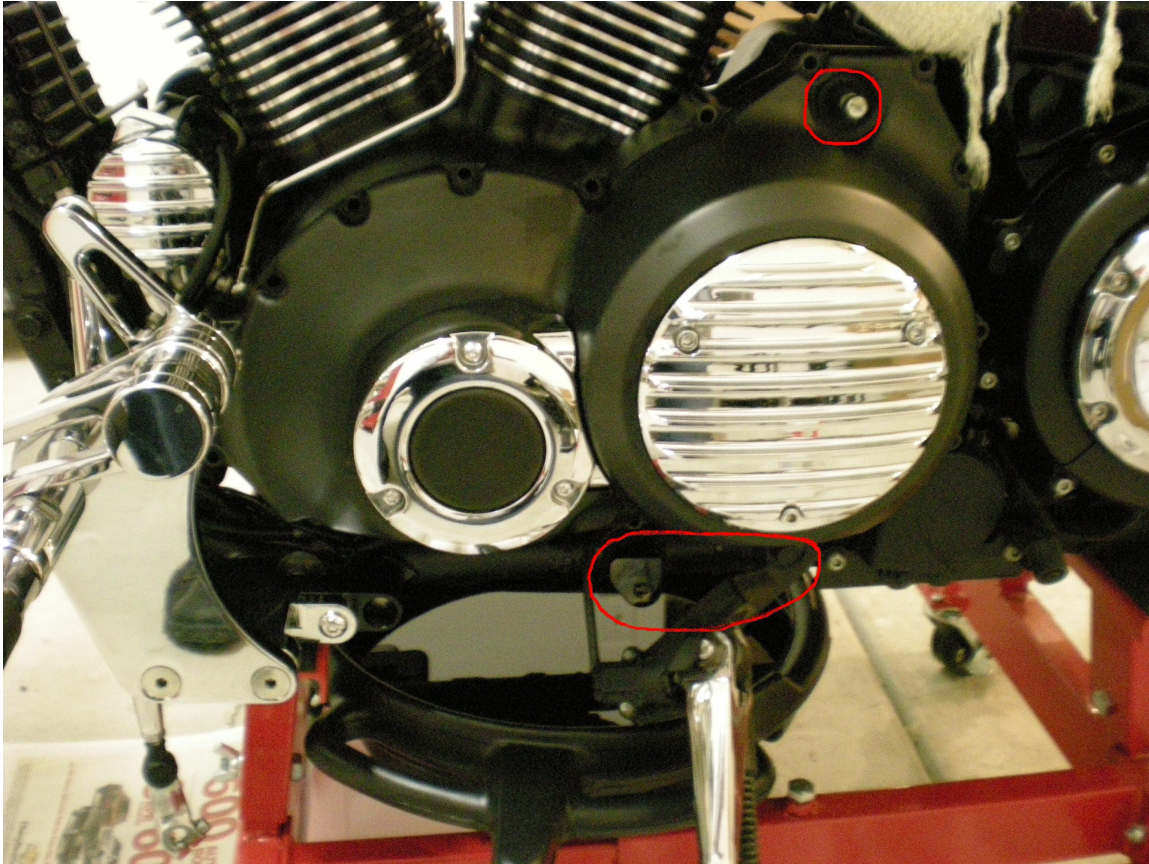
The clutch kit arrives from Barnett with a new clutch plate, two sets (6) of springs (sliver or gold) and new washers/bolts. Barnett doesn't recommend or explain which springs to use, but I chose the beefier gold springs (I did the same for my Warrior conversion and other Warrior riders went even further and bought even beefier springs from Barnett). I'm confident the gold springs will do the job here.

The steps to get into the clutch case are outlined in the service manual, but I think they go a bit overboard on item removal (I had my left side plastic cover removed for something else, you can leave it on). Here's where you're going:

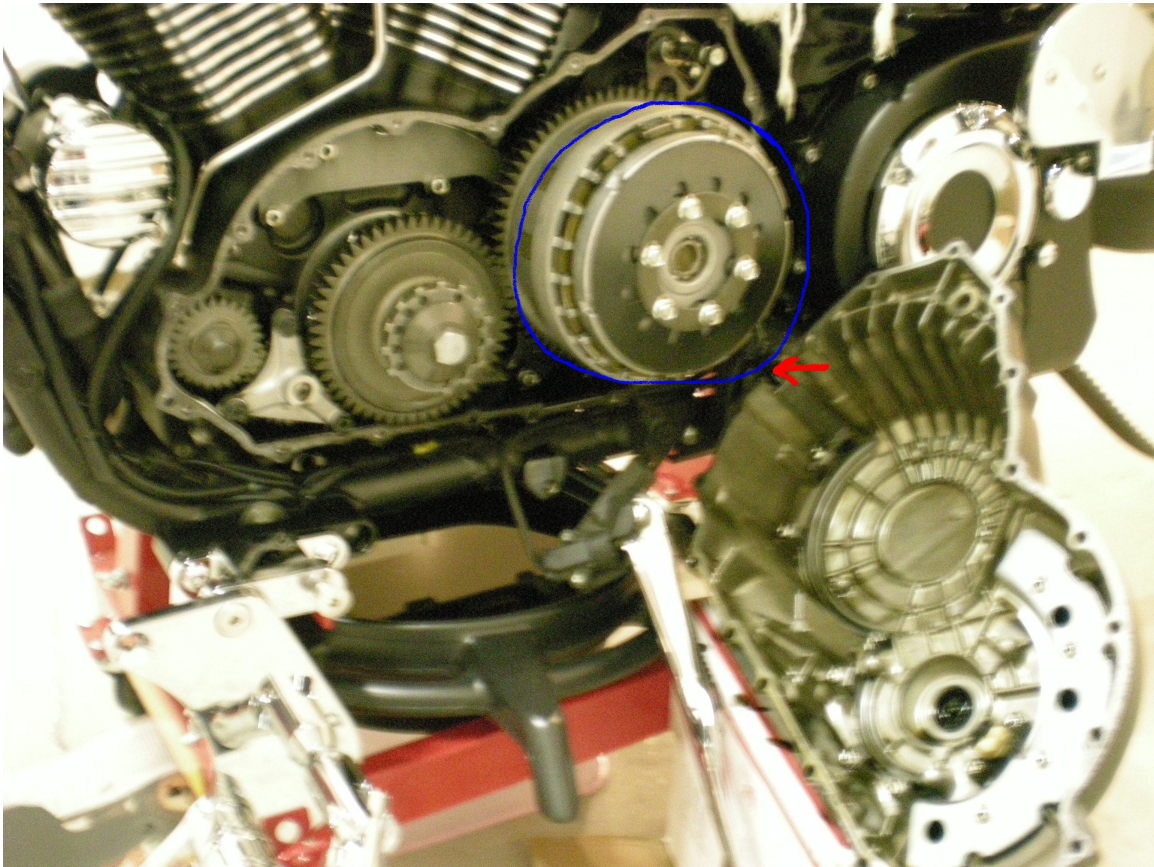


1. First, drain engine oil. Make sure to pull all three drain bolts.

2. Next, you need to get access to all of the clutch cover bolts. You'll need to remove the left floorboard assembly (I have the forward controls, so can't address this one too well – I would say to pull the two bracket bolts and it should give enough room). The kickstand bracket hides two bolts and needs to be moved, although does not need to be completely removed. Pull the front bolt, but just loosen the rear and it will rotate out of the way. Finally, disconnect the shift arm at the clutch cover. Place the floorboard/shifter assembly aside.

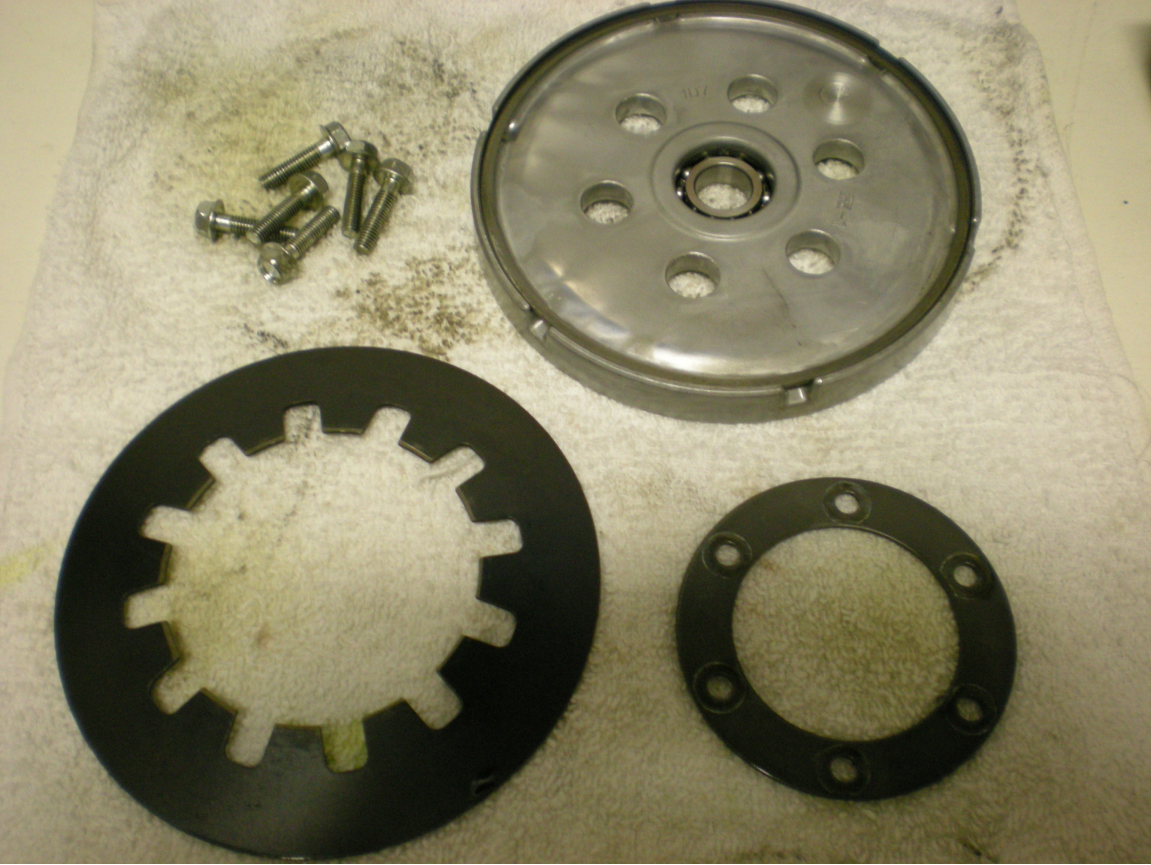


3. The photo above also shows all of the clutch case bolts removed. There are a couple different lengths. You may want to take them out in order and place them on your workbench in order, just to eliminate guess work putting them back in.
4. The case cover is held in place by a couple dowel pins. You may need to “pop” the cover with a rubber mallet to get it loose. Jiggle it a bit to get it disengaged from the pins. Make sure no pins fall out and roll away. Also, there is a washer inside the case on the shift arm bolt. It will probably fall off when you pull the case – watch for it.
5. The reason the manual has you take off a bunch of extra stuff is so you can pull the cover completely free – it is held by the crankshaft position sensor. I just left the sensor attached and laid the cover to the side. Rest it on a box or something to take pressure off of the sensor connection. (Connection point highlighted by red arrow). You can also remove the clutch cover gasket to get it out of the way. You “should” replace the gasket.

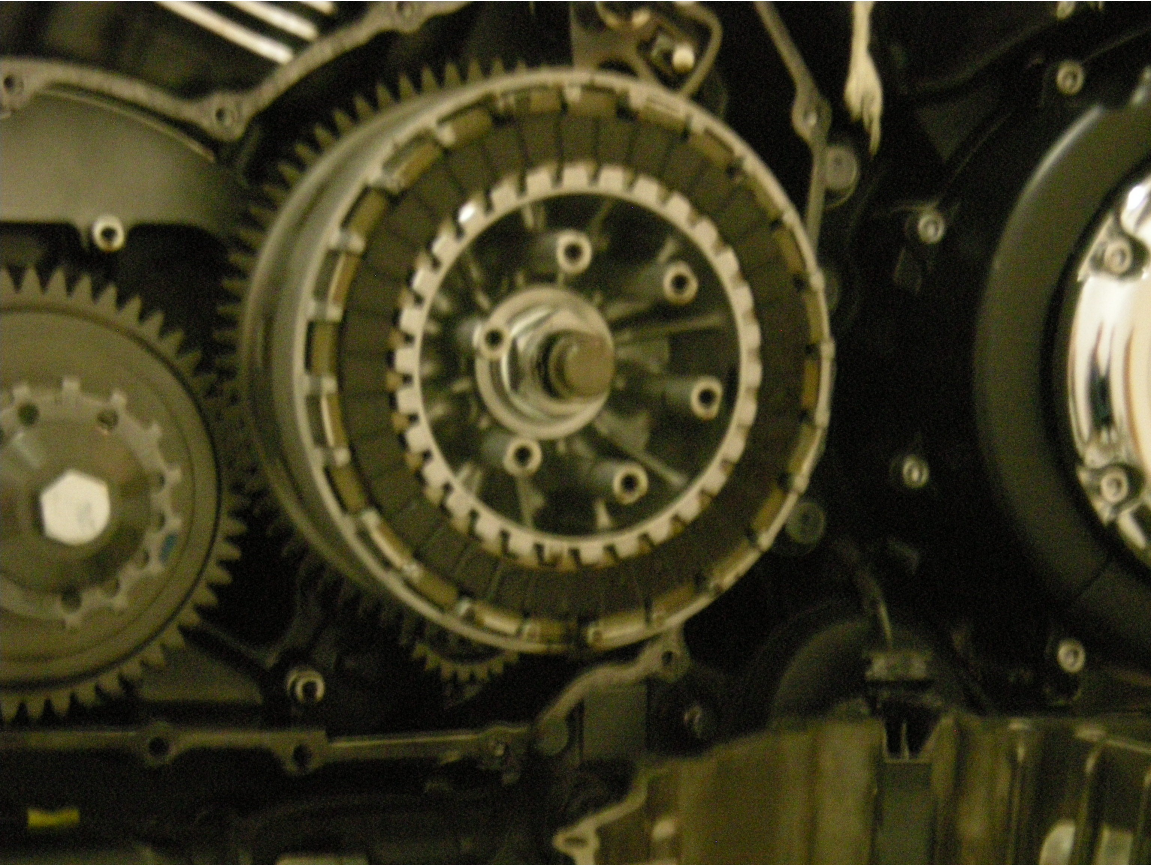


6. The blue circle is the target area. Really simple from here on... just remove the six bolts, the retainer ring, spring and pressure plate. Basically, you are replacing the single plate spring with the new springs from Barnett (thus the term conversion ☺). You may wish to note the torque on the bolts when you remove them. The manual says to torque to 5.8 ft/lb, which isn't a lot. You can tell by the feel when they come off. I had a hard time dialing in that light torque on my torque wrench, so I went more by feel.

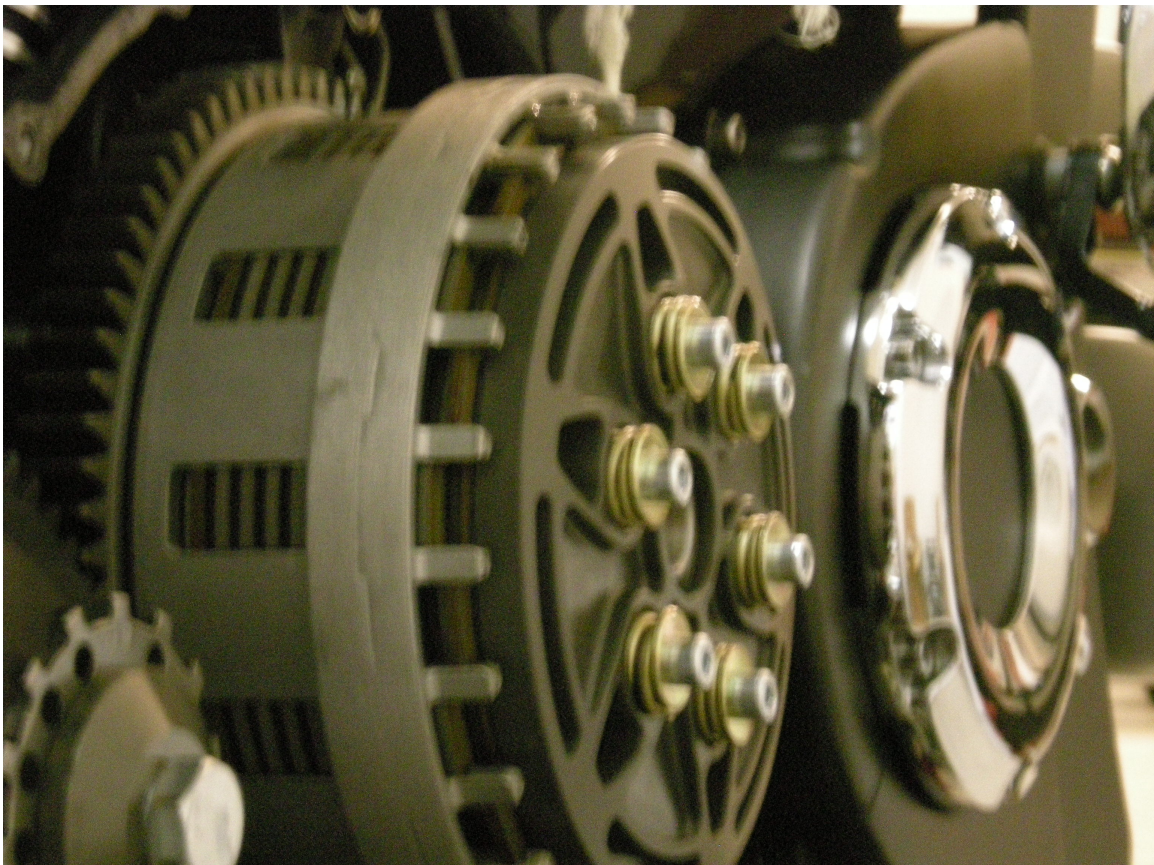
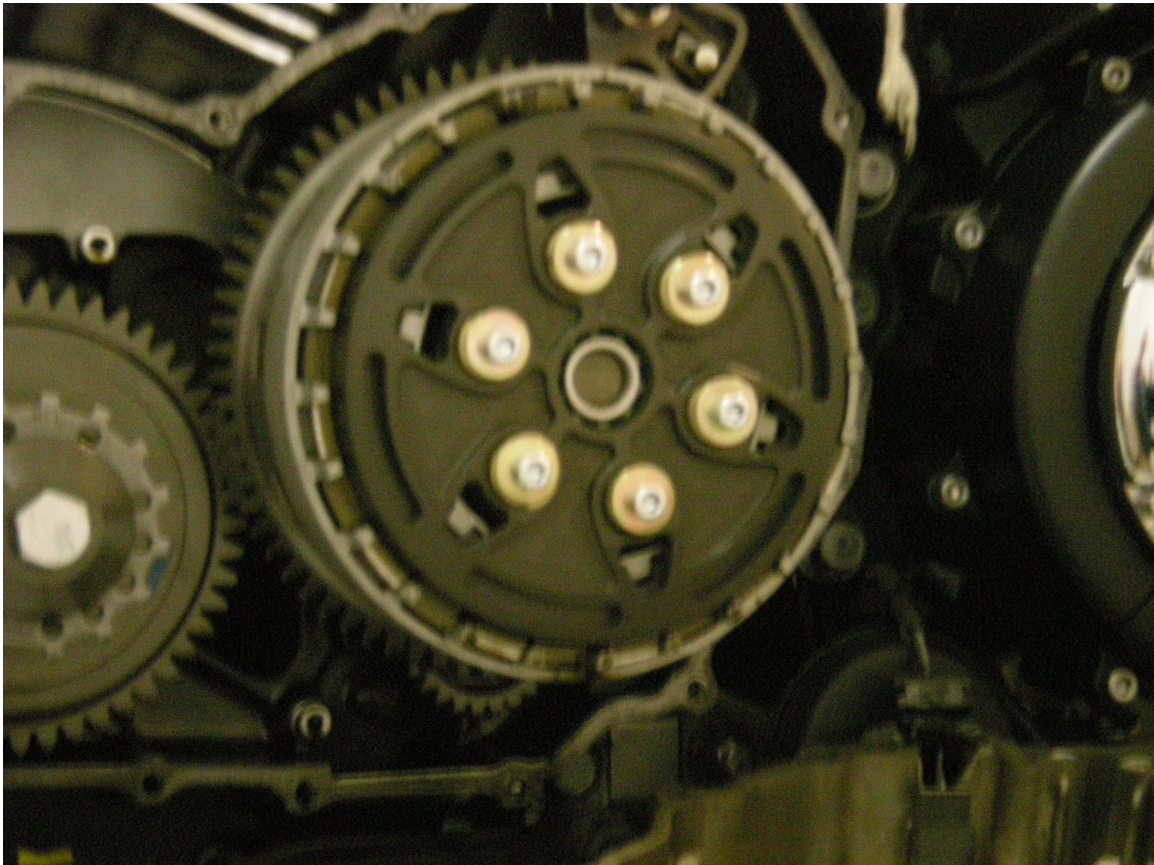
Here are the parts to remove:



And here's what it looks like when removed:



7. Now, just put on the new pressure plate, a spring in each hole, and a bolt and washer to top it off. Torque to 5.8 ft/lb.



8. Getting the case / gasket back on is probably the hardest part – make sure the gasket doesn't get folded or kinked inside and miss a bolt hole. I recommend leaving the dowel pins on the bike side and putting in 3-4 of the clutch cover bolts as guides for the gasket. Also, make sure to get the pressure sensor tucked back in nice and tight and check it as you get the case cover closer and aligned.
9. Once you have the case cover back on, insert and torque the bolts (7.2 ft/lb), reconnect the shifter, replace and tighten the kickstand and floorboard bracket.
10. Now, go for a ride and test it out!!!