

How to Replace Clutch Springs on a Kawasaki Ninja 650R

By: ThagAnderson81 (www.riderforums.com)

Parts you will need:

- New clutch springs
- Clutch cover gasket
- 2 quarts of engine oil

Tools you will need:

- 17mm wrench
- 1/4" drive ratchet
- 10mm socket
- 8mm socket
- 4mm Allen wrench
- Pliers, normal size
- Flat head screwdriver
- Gasket scraper or razor blade
- Something to drain your engine oil into

Tools that make things much easier:

- Funnel
- Small torque wrench

Miscellaneous, but not required:

- Rags
- Shop gloves

Random thoughts about the project:

I'm going to start out by talking about things not directly related to the installation. First, the new springs (made by Barnett) looked to be wound much tighter than the OEM springs, which is why I chose them. I immediately noticed the difference when riding. I had to change the way I let out the clutch during normal riding just to keep the bike from jerking too much. The feel at the clutch lever is also much improved; there is more "feeling" in the pull of the lever, whereas before, it felt very soft to me.

Let's get started.

(Refer to Fig. 1) Take your 4mm Allen wrench and remove the four bolts holding the lower fairing and frame cover in place. Using the flat head screwdriver, remove the three plastic clips from the bottom and front of the lower fairing. Remove the lower fairing by pulling towards you, then down. Remove the frame cover by pulling the bottom towards you to pop the bottom two retaining clips, and then pulling up to pop

the remaining top clip. Drain all the oil from the engine, but leave the oil filter in place (unless you plan on replacing it also).

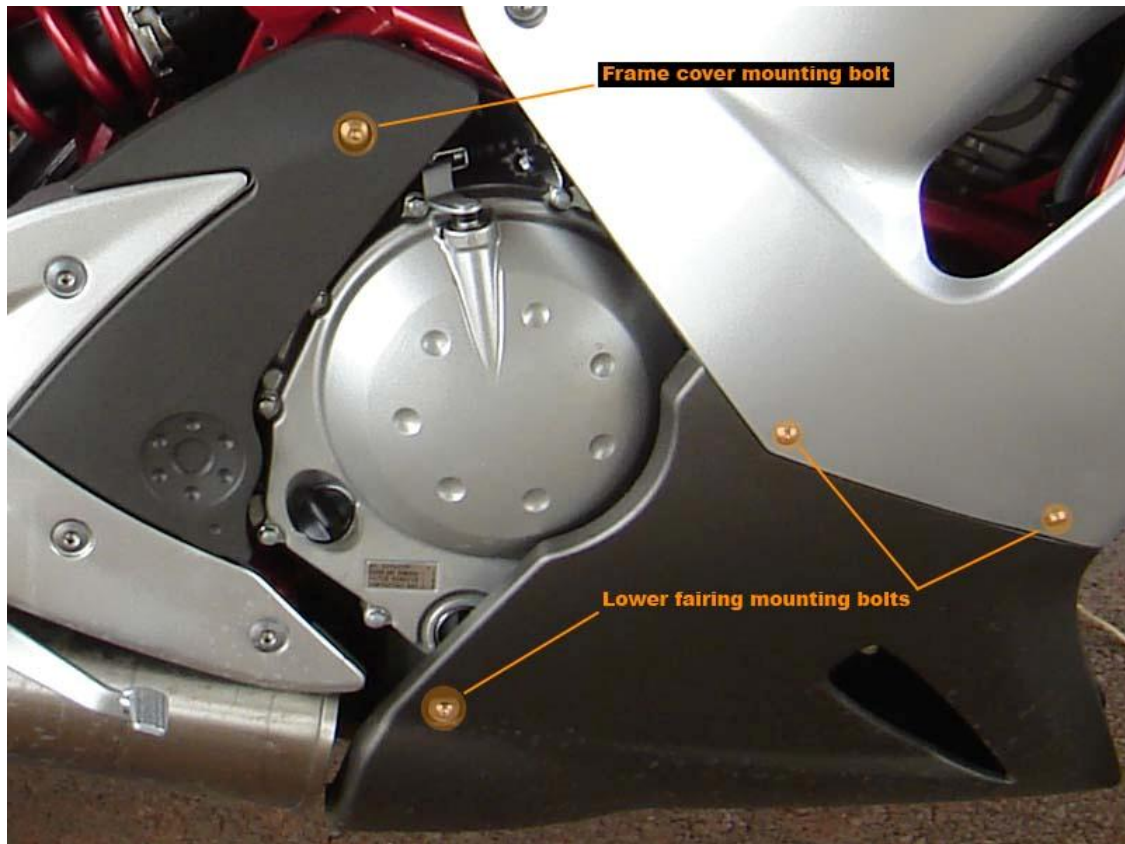


Fig. 1

(Refer to Fig. 2 & 3) Remove the throttle adjustment cable from its mount. It just slides right out. Place it out of the way, but do not let it slide behind the engine, as it is a pain to fish out. Removing the clutch cable was quite a job, for me at least. Here's how I did it: I removed the clutch lever assembly from the handlebars, turned the unit upside down, and removed the cable from the lever. Place the clutch lever assembly to the side. Much of the tension on the clutch release lever should now be gone. Take your pliers and get a good grip on the clutch cable right in front of the clutch release lever. You're going to have to push the clutch release lever towards the front of the bike as hard as you can; at the same time, you will also have to push the cable away from you and out of the mounting bracket. It took me quite awhile to get it done, but it is do-able this way.

If anyone knows of a better way to get the cable off of the clutch release lever, please feel free to post it here or PM me, and I'll add it.

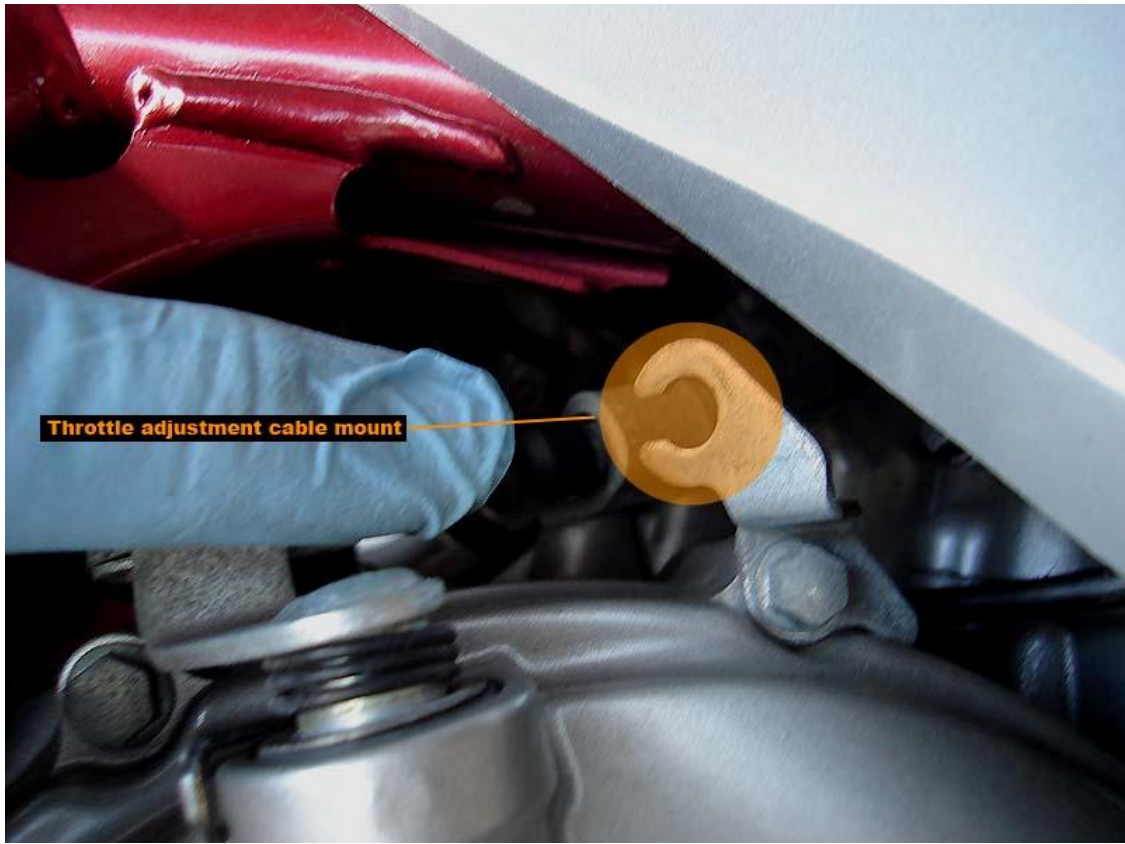


Fig. 2

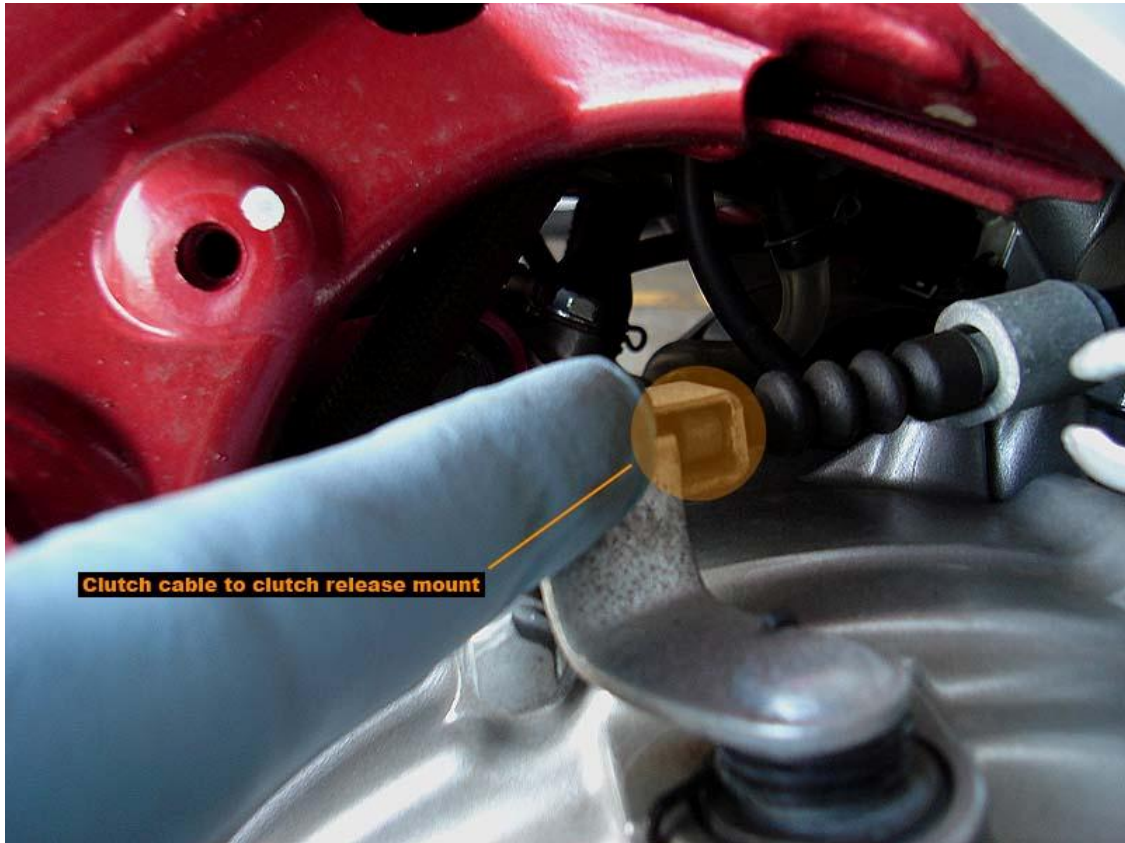


Fig. 3

(Refer to Fig. 4 & 5) Using your 8mm socket, remove the 12 bolts from around the clutch cover. One of the bolts is slightly behind the upper fairing, but it can still be easily removed using a ratchet without an extension. Rotate the clutch release lever counter-clockwise as far as it will go. Using your flat head screwdriver, gently pry on the flat edges pointed out in Fig. 5. *DO NOT* shove anything between the cover and the transmission as this will most likely damage the surfaces and cause an oil leak. It should not take much force to pry the cover off. Once removed, set the cover to the side.

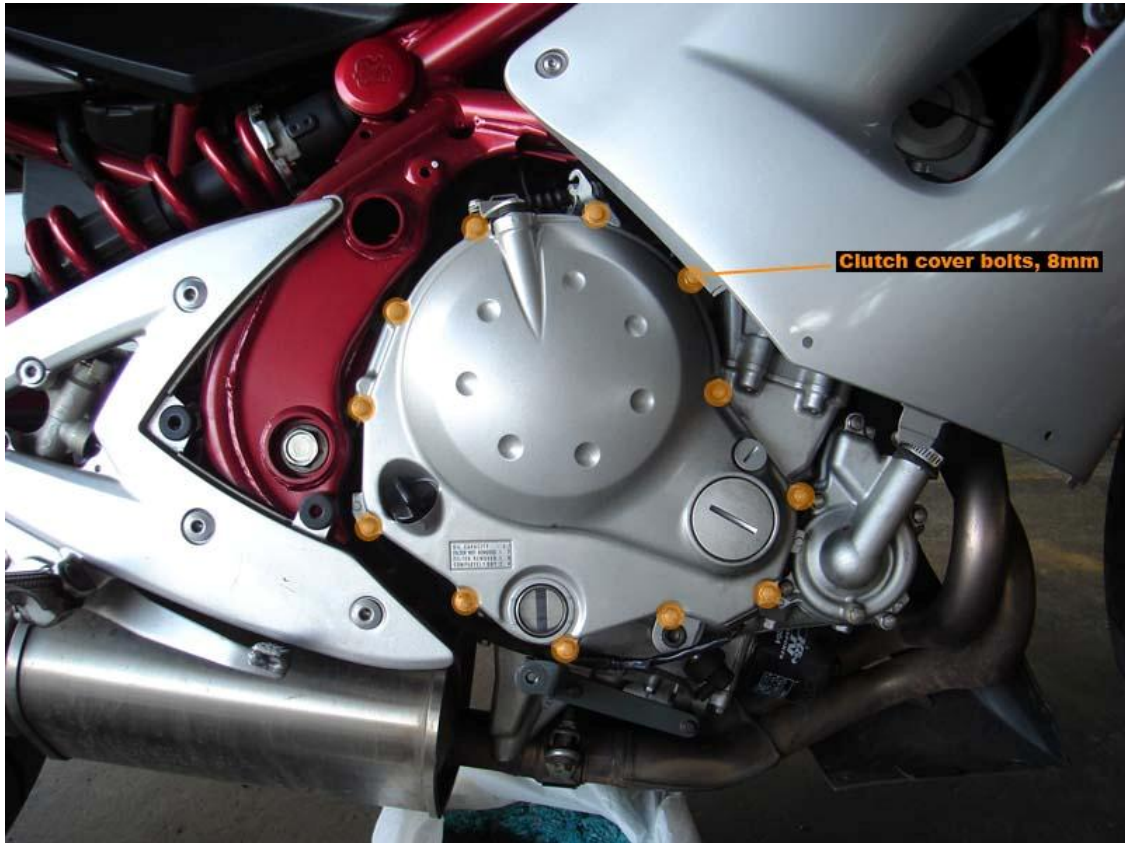


Fig. 4

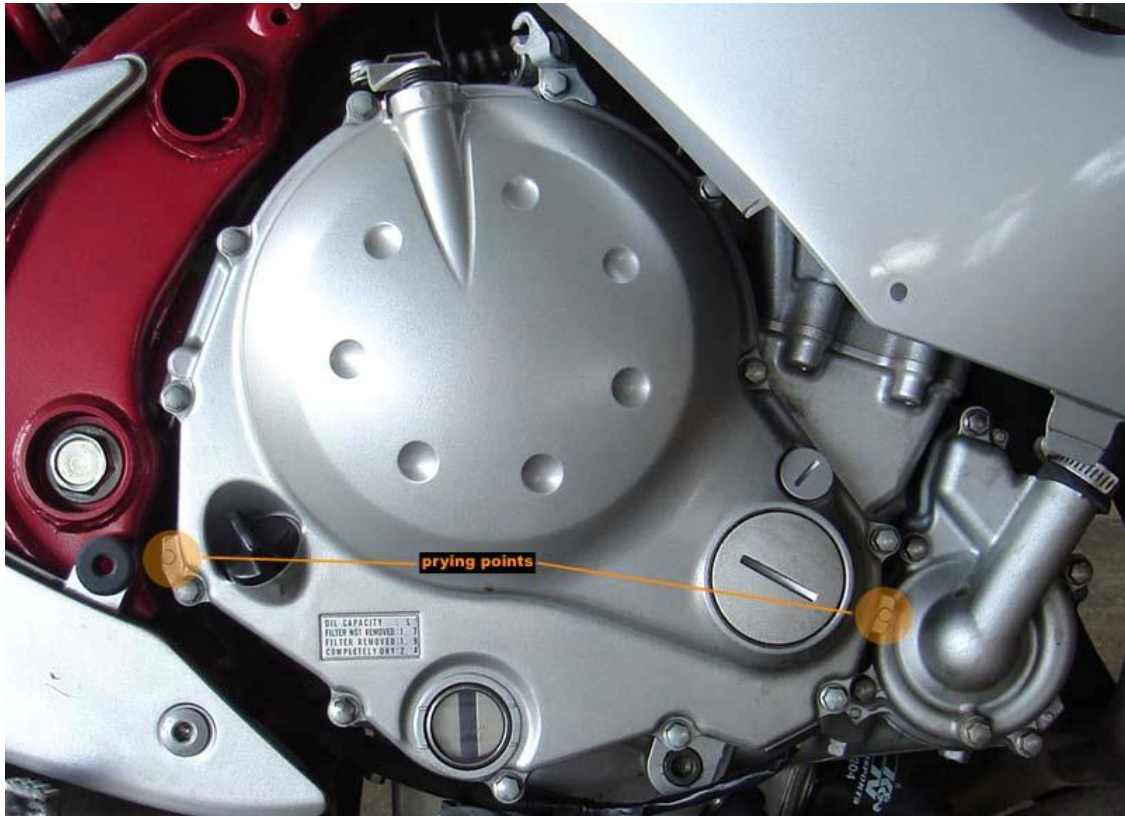
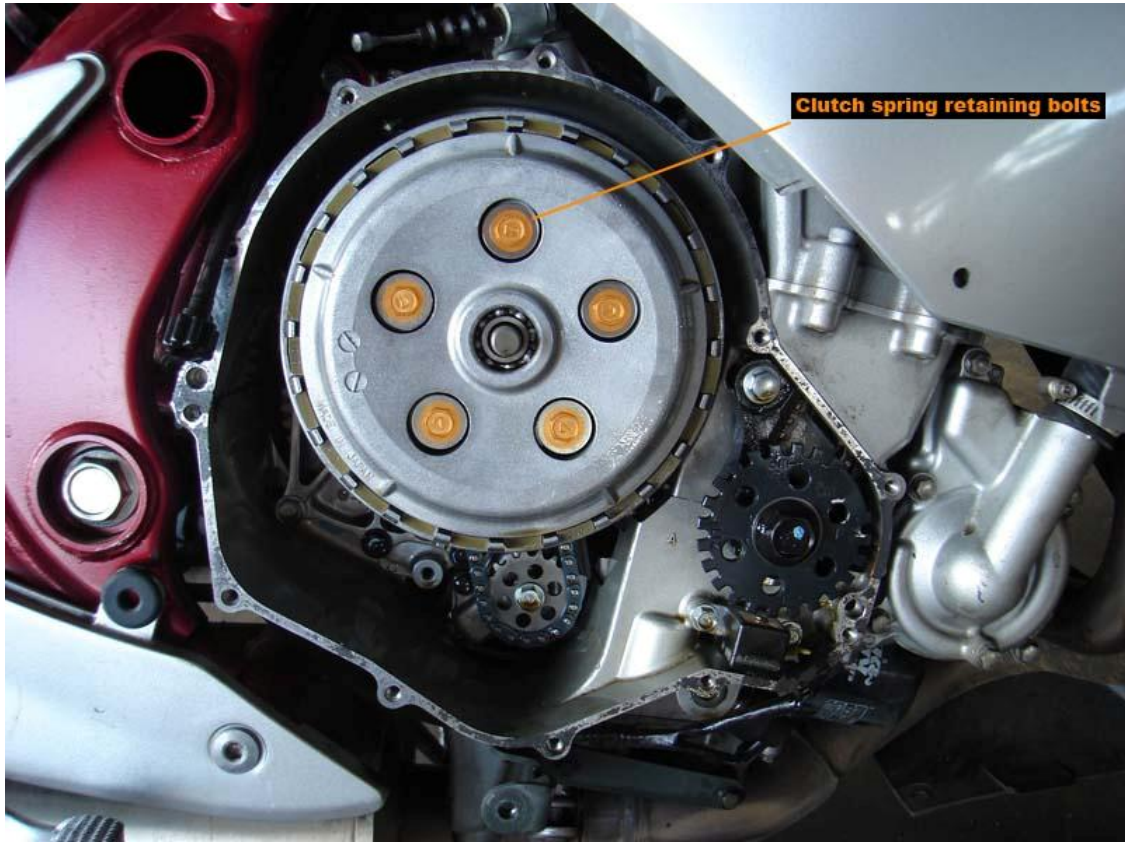


Fig. 5

(Refer to Fig. 6 & 7) Take your 10mm socket and remove the five bolts holding the springs in place. Although I don't know if it's entirely necessary, I recommend removing the bolts in a star pattern, same as you would remove the lugs on a wheel. Pull the old springs out, put the new springs in their place then torque the retaining bolts back to 7.25 ft-lbs (87 in-lbs). Using your gasket scraper or razor blade, gently scrape away any excess gasket remaining on both the cover and the transmission. Be very careful not to dig into the sealing surfaces, as this could easily create an oil leak.



Clutch spring retaining bolts

Fig. 6



Fig. 7

Once both the clutch cover and transmission have been thoroughly cleaned of any foreign particles (particularly any pieces of gasket that may have fallen into the cover or transmission during scraping), put the new gasket on the cover and place the cover back on the transmission. Make sure everything is lined up properly and that the alignment pins on the cover are in the proper place. Rotate the clutch release lever clockwise as far as it will go. This should pull the clutch cover up to the transmission. Re-install the 12 bolts, and torque them down to 7.25 ft-lbs (87 in-lbs). Clean the bottom of the clutch cover and transmission as best you can, so that any possible oil leaks will be easy to spot.

Replace the throttle adjustment cable into its holder. Using your pliers slip the clutch cable back into its mounting bracket. Insert the opposite end of the clutch cable into the bottom of the clutch lever, and re-install the lever assembly on the handlebars. Re-adjust the clutch cable tensioner at the end of the lever assembly. You will probably have to ride the bike to adjust it to your proper "feel".

Refill the engine with oil (being careful not to over-fill, as the oil filter was never removed). Check for any obvious oil leakage. Start the bike, and let it run for about 5-10 minutes, or ride it until it reaches normal operating temperature. The oil should now be thinned out to its normal operating consistency, so if it were going to leak out, this would be its most opportune time. If there is any slow oil seepage, try tightening the lower clutch cover bolts just a little. Be very careful not to strip or snap any of the bolts! If this does not help, or the leak is a considerable one, you will have to drain the oil again, and check to make sure that you cleaned *all* of the

gasket off of both surfaces.

And that's it. Enjoy your new-and-improved clutch grab!

*****Disclaimer*****

I am *NOT* a professional mechanic, and I do *NOT* guarantee that my tutorial is 100% sound advice. I am merely conveying, to anyone who wants to read it, what I did to my bike. Use this tutorial at your OWN RISK.

With that out of the way, if there is anything you see that could be made better, or anything that needs to be corrected, just tell me, and I'll try to fix/add it. Thank you.

****07Dec2006 EDIT****

Added torque specs for required components.

****ADDENDUM****

For those wanting to see the difference between the stock springs and the Barnett springs: (The Barnett springs are the shiny ones)





*** Addendum ***

Helpful additional information provided by ElectJohn (www.Ninja650.com)

I recently changed my clutch springs following the directions, which are great especially the pictures. I want to add this, I moved the clutch release lever forward with a pair of channel-lock pliers, and then removed the cable from the adjuster at the handle. I had screwed the adjuster all the way in and aligned the slots. You then have a lot of slack cable at the bottom and when you move the lever forward and pull on the cable it pops right out of the lever. I also goes back in easier, before I put the cable back into the clutch handle I lubed it as it was just hanging out, put the end into the handle aligned the cable with the slot, moved the lower lever a little and it went into the adjuster, adjusted the free-play and was done.

Thanks for all the picts and text. ElectJohn on the forums.