

## *Aprilia SL-1000 Clutch Replacement*

At approximately 6,000 miles, I began noticing clutch slip at high 2nd gear loads. Over the next 1,500 miles, it got worse, until the clutch would break free in second and third under any hard acceleration.

At this time, Aprilia considers this a consumable item and doesn't cover the clutch under warranty. Fortunately, at \$160 list (I paid \$144) for the entire clutch kit, it is reasonably priced. Even better, it is very easy to replace. Still, please ask your dealer to bring early clutch failure to the attention of Aprilia. If enough of us complain, maybe they'll redesign it.

**Update** (17-Jan-2002) Barnett now makes a clutch kit for the Falco. John Abatte has installed one. Priced similar to the Aprilia clutch, it has different construction and may provide better life.

**Disassembly procedure:**

*Click on images to enlarge*



Start by setting the bike on the sidestand, clean the clutch cover and oil tank bottom, then drain the oil tank. You do not need to remove the magnetic oil plug or oil filter. The clutch is behind the right hand (brake lever side) engine cover. Only the eight M5 screws on the inner cover need to be removed. You can leave the vacuum hose in place.

Carefully set the cover aside. Lift the eight tabs on the vacuum diaphragm and rotate the diaphragm off the tabs. Use a 19mm wrench on the M12 locknut while holding the clutch disengagement shaft with an allen key.





Remove the outer washer, vacuum "pressure plate", diaphragm, support disc, and inner washer and set them aside in order. The "spring holder" hub will now be exposed. Shift the bike into gear, hold the rear brake down and remove the six M6 bolts, washers and springs.

Remove the hub, exposing the clutch stack. Fish out the steels and frictions from the basket. You do not need to remove the shaft, but don't bend it. Inspect the basket and hub, especially along the fingers. Smooth wear spots are normal, but there should be no edges that would prevent the stack from sliding easily.



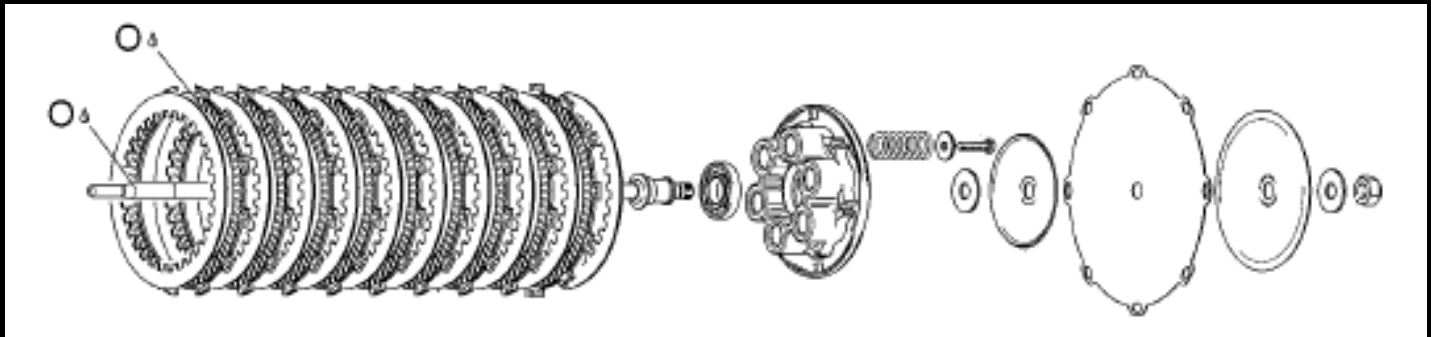
You should inspect any new or old components before you reinstall them. Frictions should always be replaced. Inspect them for glazing, wear (thickness), and cracking. Steels should be checked for bluing (a sign of overheating), and warpage. I check for warping by holding two steels together and looking for light between them (spec is less than 0.006 in warpage for one plate). Springs should be checked to make sure they have adequate free length (short springs are an indicator of fatigue and the reduced spring rate will not provide enough holding pressure).

**M**easurements for the Stock Aprilia clutch:

<i>Item</i>	<i>Avg, New</i>	<i>Avg, Used</i>	<i>Aprilia Spec</i>
Spring	1.72 in	1.73 in	> 1.69 in
Steel plate	0.059 in	0.058 in	

Friction plate (new measured dry)	0.137 in	0.135 in	
Stack height (steels+frictions)	1.82 in	1.80 in	> 1.77 in

## Assembly procedure:



- **T**he clutch should be installed wet--soak the new frictions in oil while you are taking apart the clutch.
- **R**eplace the clutch stack, alternating steels and frictions. The stack starts and ends with a steel. My steels were placed in the clutch from the factory with the chamfered side facing out, but Barnett advises just to make sure they are all pointing the same way. Slide the frictions into the deep fingers in the basket. You'll notice one friction plate may have a red dot painted on it. As far as I could measure, it was identical to the other frictions, but I saved it for last. The last friction is rotated 15 degrees from the others and fits in the shallow fingers of the basket. End the stack with a steel.  
Note that the *Barnett* stack is not made up of uniform sized plates. You should follow the instructions on stack assembly provided with their kit.
- **R**eplace the hub. Snug down the bolts, washers and new springs in a cross-ways pattern. Step on the rear brake and torque them gently to 11 N-m. This isn't much--don't crack the basket!
- **R**eplace the washer, support plate, rubber diaphragm, pressure plate, washer and nut on the end of the clutch actuating rod. Before torquing the nut down, rotate the rubber diaphragm so it isn't hooked on the tabs. It will lie flatter if it is free to rotate when you torque down the nut. The nut should be tightened down to 20 N-m, but you'll need a crowsfoot adapter (with appropriate torque conversion) if you want to use a torque wrench while you hold the rod with an allen key. Alternatively, you could hold the nut with a wrench and use a torque wrench in the counterclockwise direction on the actuating rod. If the diaphragm has a ripple and isn't lying flat, loosen the nut and try again. Hook the tabs on the rubber diaphragm.
- **R**eplace the cover and snug the bolts down in a cross-ways order. The torque spec is 5 Nm, which is just snug. If the cover weeps oil, you can always tighten it up a bit more later. I didn't disconnect the cover vacuum line, so I tested for a vacuum seal by starting the engine and feeling the feedback in the clutch lever. But don't forget to replace the oil before starting the bike.

- You may want to bleed your slave cylinder. I had no problems, but at least one person has reported getting a bubble in the line somehow during the clutch replacement procedure.
- Remember to break in your clutch. You don't want to burn your new steels while you're taking down the high spots. I think with the slipper clutch it doesn't take long at all.

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