Suzuki M109R Clutch Replacement

Special thanks to Listan1 from M109RIDERS forums for this info.

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Begin:

1. Place bike on jack or kickstand (you will be working on the right side)
   
   **NOTE**: Oil will leak out if bike is vertical and not if it’s on the kickstand)

2. A jack will allow you to spin the back wheel which may prove useful later
Remove the Exhaust System:

1. Instructions for this can be found under link for the Scorpion exhaust.  
Remove the side-cover bolts:

1. Make note of each bolt that comes out:

2. There are 3 bolts with washers (2 at the top and 1 at the bottom) Be sure to put these back in the right place or you will have an oil leak.
3. There are two long bolts in the top left.

**NOTE:** When retighten, go easy on these bolts (about **10-14 ft lbs max**) you don’t want to strip the aluminum treads or break any bolts.

![Figure 1 Bottom side-cover bolt with the washer](image)
Remove the side-cover:

- Use a rubber mallet to lightly tap the side cover loose
- Try not to rip the gasket by carefully removing the cover
  (NOTE: The gasket will probably stick to the block and cover. Carefully use a small screwdriver, etc. to pull the gasket away from bike. Slow and steady)
- You should be able to re-use your gasket (if damaged, replace gasket)
- Must be oil free and clean when reinstalling or you may have oil leak

Figure 2 There are 2 dowels on the cover
- Must be oil free and clean when reinstalling or you may have an oil leak
- Clean and inspect

Figure 3 Dowels on the side-cover
PRIMARY DRIVE GEAR

1. With the transmission in gear hold the clutch lever and spin the rear wheel... the PRIMARY DRIVE GEAR should spin freely
2. If not, move on to the next step
CLUTCH PRESSURE DISC

1. Remove the 6 bolts (10 mm socket) and springs
2. Remove CLUTCH PRESSURE DISC and inspect for damage

**NOTE:** When retightening, go easy on these bolts (*about 6 to 8 ft lbs*) you don’t want to strip the aluminum treads or break any bolts!
1. For testing for other issues:
   - Spin rear wheel to see if the PRIMARY DRIVE GEAR spins freely
   - Push the CLUTCH PUSH PIECE in and then press the clutch lever
   - The piece should move out about 1/4 inch

2. If so then move on to next step
1. Remove the CLUTCH PUSH PIECE by pulling it out
2. There is washers and a bearing here
3. Inspect
Remove CLUTCH DRIVE PLATES:

1. Clean and inspect each plates and set them down in the order and position they are remove
2. Will also be a good time to order any damage or worn clutch drive plates
1. Spin rear wheel to see if the PRIMARY DRIVE GEAR spins freely

stop here if you are only replacing the clutch
CLUTCH SLEEVE HUB NUT

1. To remove, you can either pry / tap the notch on the nut back to its original shape or simply hit it with the impact gun. It will come off w/out much effort.
2. When reinstalling, this nut has to be retighten at about 80 ft lbs.... I just use the impact gun and get it nice and tight.

**NOTE:** You must re-bend the nut to lock the nut back in place. (hit the notch with a center punch and brass hammer to re-notch it)
1. Remove clean and inspect nut
2. Use an impact gun with a 30 mm socket (6 point socket preferable) and remove the hub nut
3. An electric impact gun works good as it is not too powerful to cause damage
- remove clean and inspect washer
CLUTCH HUB:

1. Remove clean and inspect clutch hub
The CLUTCH HUB
1. Now spin rear wheel to see if the PRIMARY DRIVE GEAR spins freely
2. Clean and inspect

**Tubular Nut:**

1. There is a nut that look like a gear in the center of the PRIMARY DRIVE GEAR... check to see if it is loose
2. *if you can turn it by hand, you found a BIG problem*
3. Remove the nut and inspect
1. Clean and inspect
**Tubular Nut Tool:**

Honda Socket / Spanner for the VTX works.

**Part Number:**
07910-4630100

**Cost:** $90.00
1. Clean and inspect

1. Clean Tubular Nut with electrical contact cleaner or a solvent that does not leave any residue
2. Apply RED Loctite when installing nut
3. Tighten to 100-105 ft lbs
1. Remove washer and **PRIMARY DRIVE GEAR** clean and inspect

1. Clean and inspect
1. Clean, inspect and apply loctite when installing
2. The gear is not listed separately in the parts manual and may be sold as part of the PRIMARY DRIVE GEAR
3. Clean and inspect
1. Clean and inspect gear, washers and bearings
1. Clean and inspect PRIMARY DRIVE GEAR SPACER
1. Yow you have everything clean inspected
2. Order all necessary parts

1. Clean everything before installing.
2. Reverse to install everything following torque specs included.
3. After a short test drive, it’s recommend you perform an oil & filter change as your engine was exposed to dust, dirt and lint.
Figure 4 Factory Diagram
<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>21151-48G00</td>
<td>SPACER, PRIMARY DRIVE GEAR 1</td>
</tr>
<tr>
<td>21100-48G00</td>
<td>GEAR ASSY, PRIMARY DRIVE 1</td>
</tr>
<tr>
<td>21410-48G00</td>
<td>HUB, CLUTCH 1</td>
</tr>
<tr>
<td>21413-48G00</td>
<td>SPRING, CLUTCH 6</td>
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<tr>
<td>21441-48G00</td>
<td>PLATE, CLUTCH DRIVE NO.1</td>
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<tr>
<td>21451-48G00</td>
<td>PLATE, CLUTCH DRIVEN NO.1</td>
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<tr>
<td>21451-48G10</td>
<td>PLATE, CLUTCH DRIVEN NO.2</td>
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<tr>
<td>21462-48G00</td>
<td>DISC, CLUTCH PRESSURE 1</td>
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<tr>
<td>21471-48G00</td>
<td>SEAT, WAVE WASHER 1 109X124X1.6</td>
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<tr>
<td>21472-48G00</td>
<td>WASHER, CLUTCH PLATE 1</td>
</tr>
<tr>
<td>21482-41G00</td>
<td>BOLT, CLUTCH SPRING 6</td>
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<tr>
<td>09159-24010</td>
<td>NUT, CLUTCH SLEEVE HUB 1</td>
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<tr>
<td>09160-25056</td>
<td>WASHER, CLUTCH SLEEVE HUB THR 1 25X50X2.50</td>
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<tr>
<td>09160-25056</td>
<td>WASHER, PRIMARY DRIVE 1 25X50X2.50</td>
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<tr>
<td>09164-24006</td>
<td>WASHER, CLUTCH SLEEVE HUB WAV 1</td>
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<td>09263-32020</td>
<td>BEARING, PRIMARY DRIVE 1 32X37X38.3</td>
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<tr>
<td>23110-24F00</td>
<td>ROD, CLUTCH 1</td>
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<tr>
<td>23111-48G00</td>
<td>ROD, CLUTCH PUSH, L 1</td>
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<tr>
<td>23121-41G00</td>
<td>PIECE, CLUTCH PUSH 1</td>
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<tr>
<td>Part Number</td>
<td>Part Description</td>
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<td>-----------------------------------------</td>
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<tr>
<td>23122-02FR0</td>
<td>BALL, CLUTCH PUSH</td>
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<tr>
<td>23122-48G00-A05</td>
<td>CAMSHAFT, CLUTCH RELEASE</td>
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<tr>
<td>23123-41G00-A05</td>
<td>CAP, CLUTCH PUSH ROD</td>
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<tr>
<td>23125-48G00-A05</td>
<td>SPRING, CLUTCH RELEASE RETURN</td>
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<tr>
<td>23271-48G00-A05</td>
<td>ARM, CLUTCH RELEASE</td>
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<tr>
<td>09134-06015-A05</td>
<td>SCREW, CLUTCH PUSH ROD</td>
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<tr>
<td>09160-10020-A05</td>
<td>WASHER, CLUTCH RELEASE 1 10.5X24X1.0</td>
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<td>09160-15045</td>
<td>WASHER, CLUTCH PUSH PIECE 1 15.5X28X1.0</td>
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<tr>
<td>09263-10014</td>
<td>BEARING, CL RLSE CAM LOWER 1 10X14X10</td>
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<td>09263-12027</td>
<td>BEARING, CL RLSE CAM UPPER 1 12X18X12</td>
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<td>09263-15003</td>
<td>BEARING, CLUTCH PUSH PIECE 1 15X28X2.0</td>
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<td>09282-10012</td>
<td>SEAL, CL RLSE CAMSHAFT OIL 1</td>
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<td>09283-06010</td>
<td>SEAL, CLUTCH PUSH ROD OIL 1</td>
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<td>09285-10004</td>
<td>SEAL, CLUTCH PUSH ROD CAP 1</td>
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<tr>
<td>01550-0620A</td>
<td>BOLT, CL RELEASE ARM 1</td>
</tr>
<tr>
<td>08310-0006A</td>
<td>NUT, CLUTCH RELEASE ADJ 1</td>
</tr>
</tbody>
</table>
Clutch Plate Install Order:

Install 1st: (direction doesn’t matter)

Plate #6 21441-48G10
Install 2\textsuperscript{nd}: (direction doesn’t matter)

#13 - WASHER, CLUTCH PLATE 21472-48G00 (new)
Install 3rd: (much debate if direction matters, but general consensus is wide side toward bike..this pic shows the opposite of that)

#12, SEAT, WAVE WASHER 21471-48G00 (new)
Install 4th:

Plate #10 21441-48G00
Install 5<sup>th</sup>:

Plate #5 21451-48G00
Install 6th:

Plate #9 21441-48G00
Figure 11

Install 7th:

Plate #5 21451-48G00
Install 8\textsuperscript{th}:

Plate #9 21441-48G00
Install 9th:

Plate #5 21451-48G00
Install 10th:

Plate #9 21441-48G00
Install 11th:

Plate #5 21451-48G00
Install 12\textsuperscript{th}:

Plate #9 21441-48G00
Install 13\textsuperscript{th}:

Plate #5 21451-48G00
Install Last Plate: (make sure it’s facing away from the bike)

Plate #10 21451-48G10