

How to install the Barnett clutch and the stronger Oil Pump Drive Gear

Written by WildFred

I'm from Germany so please excuse my English and the spelling.

The following procedure is a combination of the Information I gathered from the RoadStar Forum and from the way I did it. I recommend to study the applicable sections in the maintenance manual on page 5-60 and 5-100 to get familiar with the parts.

Disclaimer:

This procedure is for information only. It shows how I did it and it has worked for me but it is up to you and your responsibility to decide how you are doing it. Always use the manual for correct references and procedures.

You will find steps in there which a professional mechanic does not need but which where helpful for a "I do it the first time" mechanic like me.

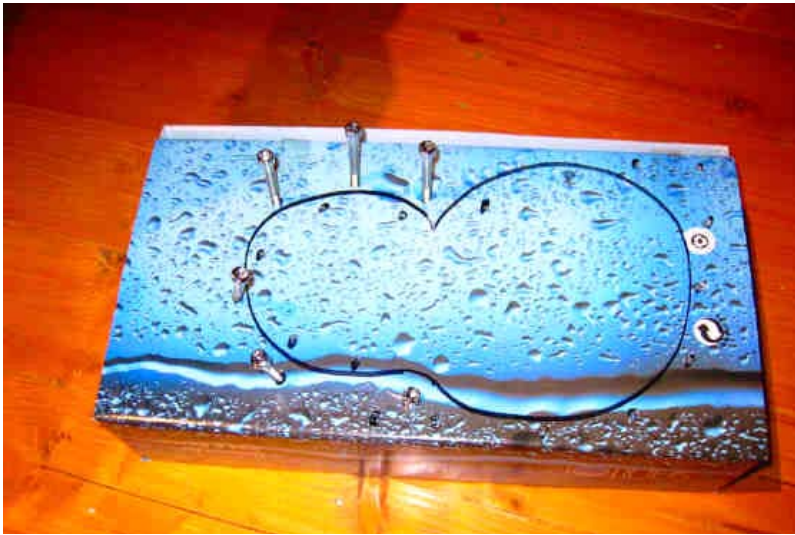
OK lets get started.

Tools and Materials used:

- Bike lift
- 5mm Allen key wrench
- 10mm socket 3/8" drive
- 5mm Allen key socket 3/8" drive
- 30mm socket 3/8" drive
- Sort and long extension for ratchet
- Ratchet 3/8" drive
- 17mm comb. Wrench
- Hammer
- Torque wrench (min. 5lbs-50lbs)
- Pair of pliers (big enough to grap the 30 mm nut)
- Rags
- Engine oil
- Oil filter
- Oil container catch
- gasket from Yamaha
- small punch
- flathead screwdriver
- Putty knife, stiff blade
- Barnett clutch
- Oil pump shaft gear
- Cardboard box
- Edding Marker
- One way rubber gloves, I just like to walk away from a job with clean hands :-)

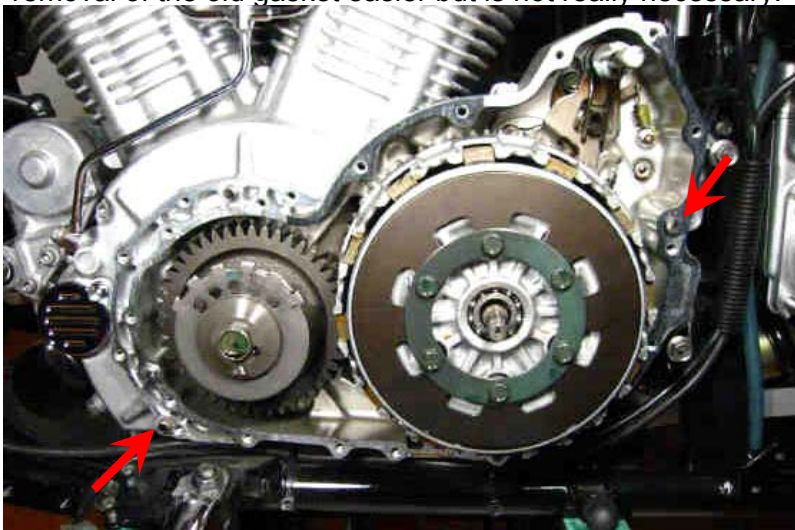
Note: The numbers in parentheses () correspond to the manual item numbers where applicable.

1. Put bike in neutral
2. Raise bike on lift
3. Drain engine oil (17mm comb. Wrench)
4. Remove shift rod
5. Remove clutch cable from pull lever
6. Remove pull lever (2) and pull lever spring (3) . Bolt must be out for removal.
7. Remove clutch cable holder (6)
8. Take the cardboard box and draw a sketch of the clutch cover on it. Mark the position of the bolts on it.
9. Remove left side engine cover (stock color is gray) and stick the bolts into the cardboard box. This is a very easy method for not loosing or mixing up the bolts



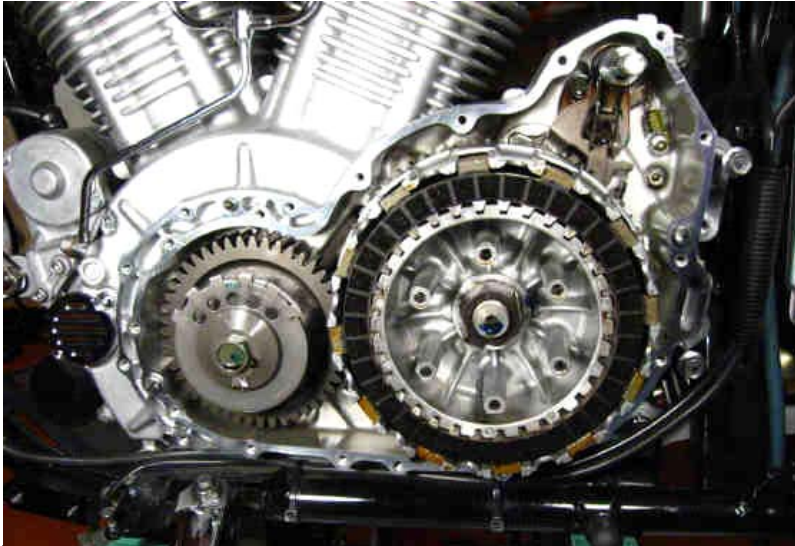
Cardboard box with sketch and bolts

10. Remove clutch cover (7) (keep track of the dowels) and stick the bolts into the cardboard box. I have also unplugged the connector of the cable since it was easy accessible, bike was almost completely apart anyway. This makes the removal of the old gasket easier but is not really necessary.



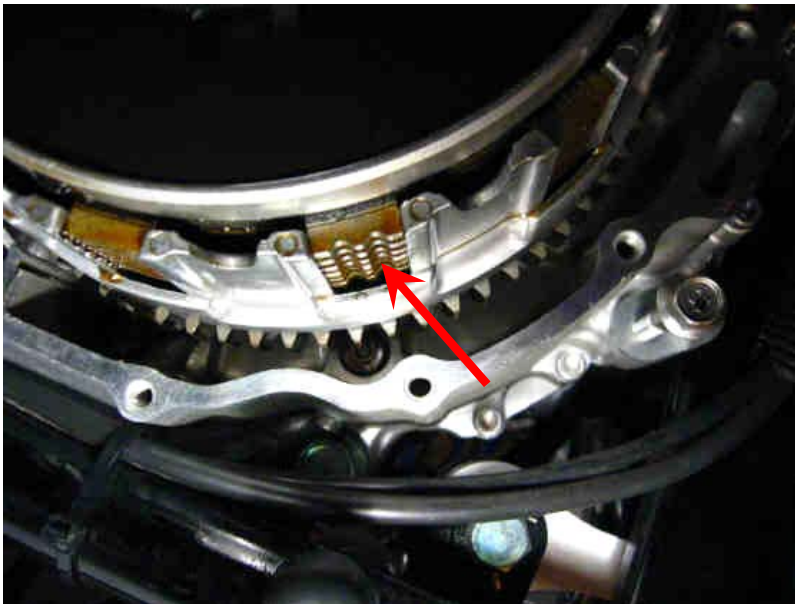
The clutch cover is off (keep track of the dowels)

11. Remove the 6 hex head bolts in stages and in crisscross pattern from and the clutch spring plate retainer (1) [10mm socket]
12. Remove as an assy the clutch spring plate (2), clutch spring plate seat (3), pressure plate (4), and the pull rod (5). [if you're just doing the clutch conversion go to step 24]



The spring plate assy is removed

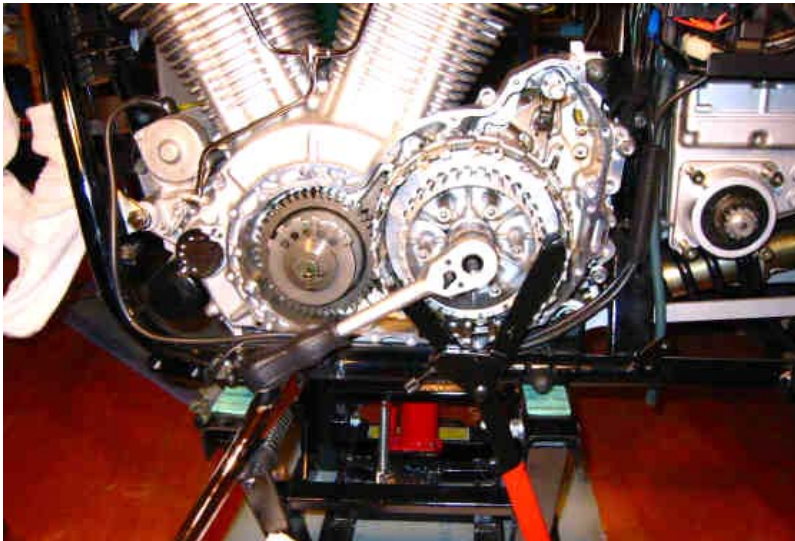
13. There is a double notch in one of the cogs of the plates and they must match up to the embossed double circles on the clutch housing. Must be installed same way!!!! I removed the friction (6) and clutch plates (7) from the clutch housing (16) to gain better access to the nut that needs to be removed.



The double notch must match up to the embossed double circles on the clutch housing.

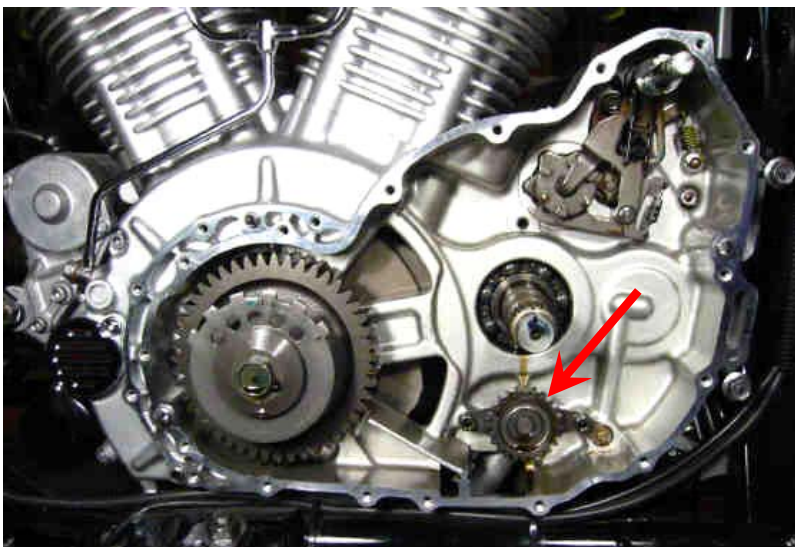
14. Bend the lock washer (8) with a screwdriver and flatten it with the punch and the hammer so you can turn the nut that holds the clutch boss(14), thrust washer (15) and clutch housing (16).
15. Remove the nut while holding the clutch boss (15). I bought a tool to hold it. Others used a big screw driver or had someone holding it. I did it by my own and didn't want to risk to brake anything and to have finally more to invest as 23 bucks for the appropriate tool. Anyway it's up to you how you do it.

Note: Mark the position of the lock washer to the spline. You will know why when you assemble it.



Removal of the nut using the clutch holder

14. Slip the entire clutch housing (16), (15), (14), (13), (12), (11), (10), (9) off the shaft. And there it is - the Oil Pump Gear.



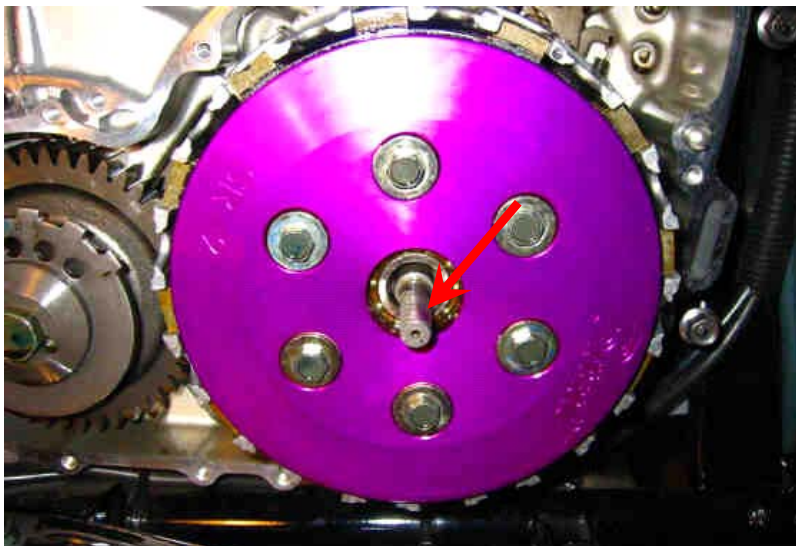
Clutch is removed and Oil Pump Gear is exposed

17. Remove the two allen bolts [5mm allen key] and removed the engine oil pump driven gear stopper (3) and the gear (4). See Manual page 5-100.
18. Lubricate and install the new gear and reinstall. Ensure gear is seated properly
19. Torque allen bolts with 7.2 ft-lb.
20. Clean old gasket off of engine casing and clutch cover (7)
21. Install the clutch housing(16).The easiest way to match the gears is to turn the oil pump gear by sticking your finger on the bottom between clutch housing and engine housing.



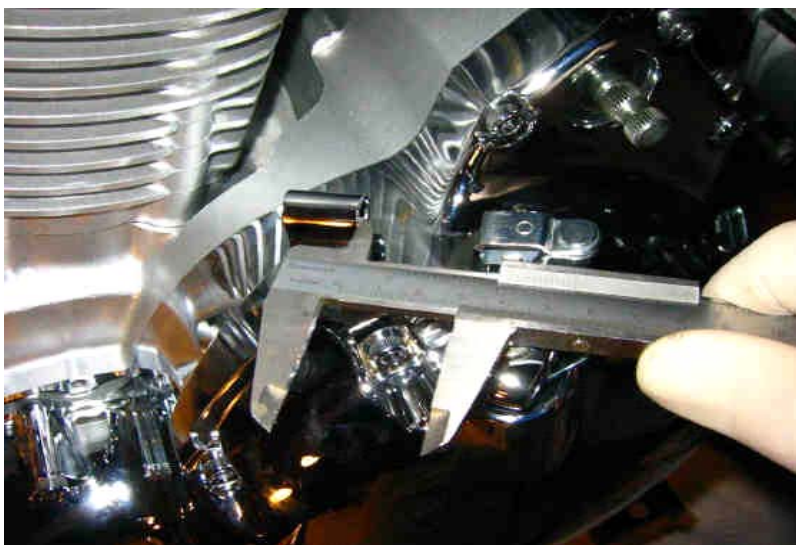
Reinstallation of clutch housing

22. Install Thrust washer (15), clutch boss (14), lock washer (8) in the marked position and 30mm nut. Torque nut with 50 ft-lb. Bend tap of lock washer flat along one side of the nut. Bad luck if the position is no good. Open the nut and rotate the lock washer. I had to re do it once since the original torque was a little low. However, was easy to do with the right tooling.
Use the Pair of pliers to bent / press the tap fully against the nut.
23. Reinstall the friction (6) and clutch plates (7).
Remember, the double notch must match up to the embossed double circles on the clutch housing. See step 13
24. Place pull rod (5) in the Barnett pressure plate. Lubricate pressure plate mating surface with friction plate.
Note: There is a lot of play between push rod and the bearing but don't be afraid there is nothing missing.
25. Install Barnett pressure plate and springs and washers using the original bolts. It probably won't fit the first time and you will have a gap between the friction plate and the Barnett pressure plate. Rotate the pressure plate until it fits without gap.
26. Tighten the bolts in stages and in crisscross pattern to 5,8 ft-lb.
Note: I placed two 10mm nuts in the socket to reduce the depth of the socket. Makes the installation of the bolts much easier since you have to press on the bolt head.



Barnett Clutch and push rod installed

27. Install dowel pins if removed.
28. Install gasket, clutch cover and clutch cable holder (6). It's a little tricky to align push rod and the lever shaft in the engine cover. Just take your time. It will fit.
29. Check if the lever shaft is properly engaged. It can be turned back and force about 3/8".
30. Install the bolts. Tighten to 7,2 ft-lb in stages and in crisscross pattern
31. Turn the clutch lever shaft counter clockwise by hand.
32. Install the pull lever (2) without pull lever spring (3) in order to get 31,8 mm (1,25") distance between clutch cable holder and lever.
33. Remove clutch lever (2) and reinstall together pull lever spring (3) in the marked position.



31,8 mm (1,25") distance between cable holder and lever.

That's it. The rest should be easy if you got this far.
Please mail questions or any feedback to wildfred@gmx.net

Good luck
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