

# BRUTE IV EXTREME™ TOURING 2007 & 2008

## INSTALLATION GUIDE

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**NOTE: Read the instructions carefully before proceeding with the actual installation.**

**NOTE: To avoid accidental start up of vehicle during the installation, remove both battery cables & the battery. Securely block motorcycle in an upright position. Different models will require the removal of shifting levers, foot pegs, etc. Remove whatever is necessary to accomplish the installation per your OE service manual.**

**(On all 2007 & some 2008 models, you must replace the alternator rotor with part # 30041-08)**

Using your OE manual, strip the motorcycle down to what is shown in Figure 1. Remove the bearing race from the transmission mainshaft using JIM'S part # 34902-84. Remove alternator rotor and check sprocket shaft oil seal. The steel back on this seal should face away from the engine when using a primary belt drive which will keep oil from leaking out of the motor. (Use seal HD part # 12068).

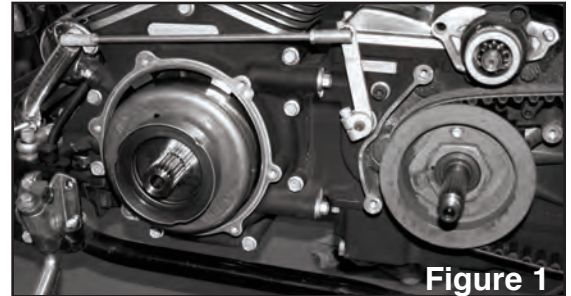


Figure 1

On 2007 models and some 2008 models it will be necessary to replace the stator rotor with the later OE part # 30041-08. (We stock this part). (See figure 2)

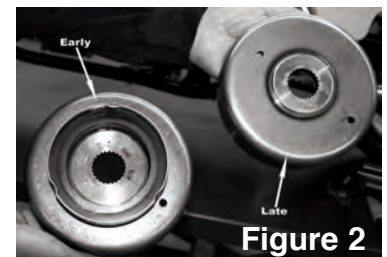


Figure 2

**NOTE: Although the motorplate will come pre-assembled and ready to install from the factory (See Figure 3), in the event that it becomes necessary to disassemble it we are including some of the steps needed to re-assemble it.**

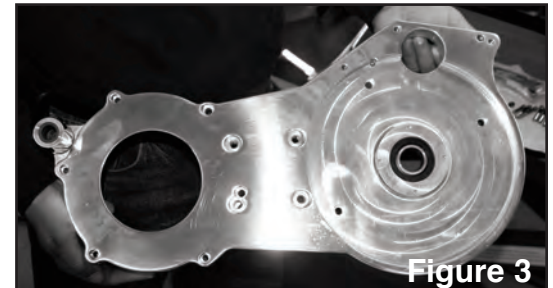


Figure 3

Install the dowels using the method as per figure 4. Use a 5/16-18 x 3" bolt, 5/16" flat washer & 5/16-18 nut to install all the hollow dowels except for the lower front mp bolt hole which will require a 1/4-20 x 3" bolt, 1/4" flat washer & 1/4-20 nut.



Figure 4

Install the motorplate spacers (2 round spacers with hollow dowels on trans side, one starter spacer with engraved logo and 2 split hollow dowels on the starter side, and one alternator spacer) onto the hollow dowels already installed on the motorplate. (see figure 4).

**NOTE: The round spacers have a beveled edge on one end and a crisp edge on the other end. The beveled end goes toward the trans and the crisp edge goes up against the motorplate. (See figure 5).**

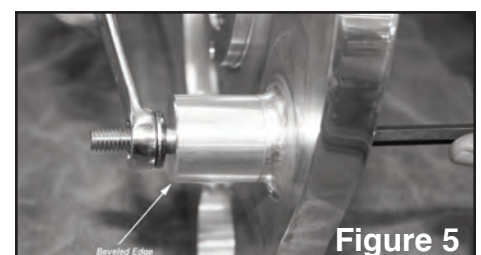


Figure 5

motorcase

Apply two drops of blue threadlocker to the two 5/16-18 X 1 1/2" SHCS bolts and then attach the starter spacer to the motorplate by threading the two bolts from starter side of motorplate spacer into motorplate and torque 25 ft.lbs. (See figure 6).

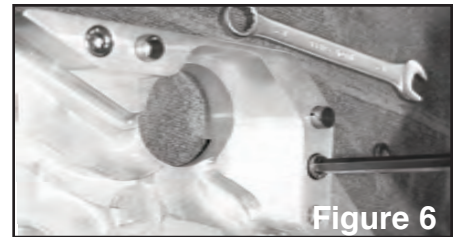


Figure 6

The motorplate is now ready to install (See figure 7).  
NOTE: The shifter shaft support is threaded and can be removed if forward controls are used instead of the OE heel/toe shifter.

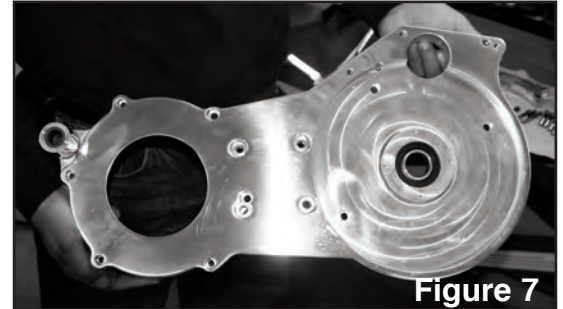


Figure 7

Remove the oring from the starter pinion gear housing. (See figure 8)

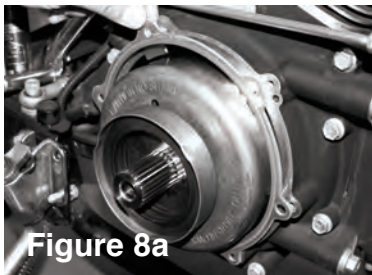


Figure 8a



Figure 8

Install the stock OE motorcase gasket/spacer ring that came with the motorcycle over the sprocket shaft and against the motorcase. (See figure 8a).

Loosen the bracket holding the starter motor in place, then position the motorplate (with the motorcase spacer & gasket between the motorplate and motor case) over the motor sprocket shaft and the transmission mainshaft. As you slide the motorplate toward the motor and transmission, slide the shifter shaft for the heel toe shifter into the shifter shaft support, at the same time fit the motorplate over the starter motor pinion gear housing. (See figure 9 & 9a). Now slide the motorplate inward until it is resting firmly against the motorcase and transmission.

Using the existing two 5/16-18 SHCS, partially thread then torque per OE specs into the back of the motorplate to secure the starter and re-tightened the starter motor bracket. (See figure 9b).

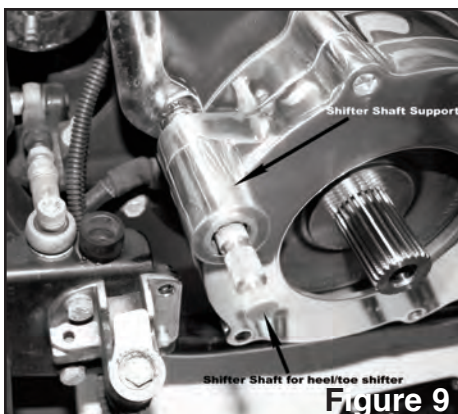


Figure 9

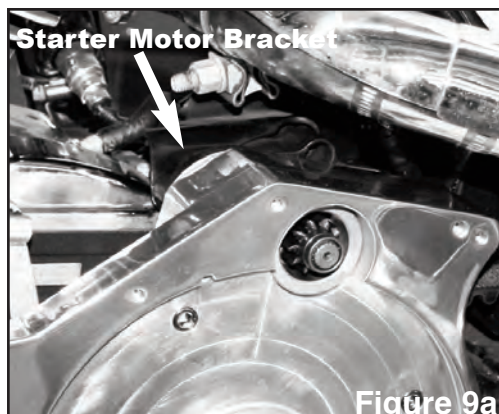


Figure 9a

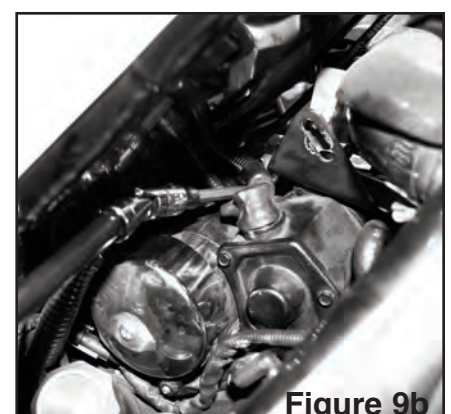


Figure 9b

Now, using the supplied (4) 1/4-20 X 2 1/2" (motorplate to motorcase) & (2) 5/16-18 X 2 1/2" (motorplate to motorcase) & (3) 5/16-18 X 2 1/4" (motorplate to transmission) bolts, secure the motorplate to the transmission and motorcase making sure to use 2-3 drops of blue threadlocker on each bolt. Then torque the 1/4-20 SHCS to 98-102 in. lbs & 5/16-18 SHCS to 28-32 ft. lbs. (See figure 10 & 10a).

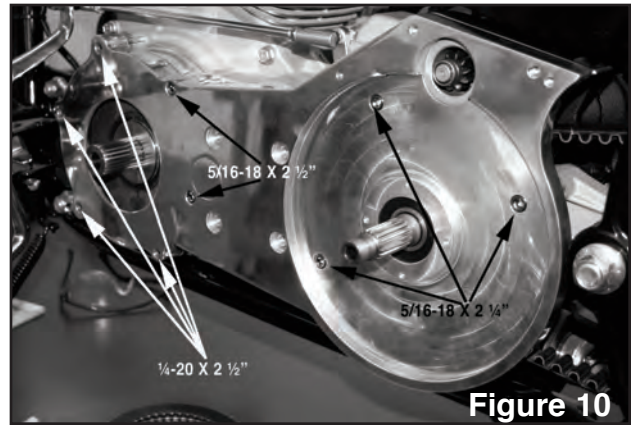


Figure 10

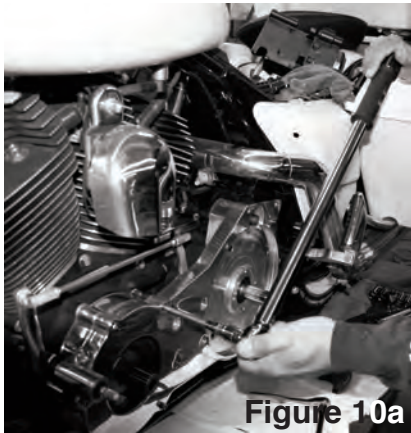


Figure 10a

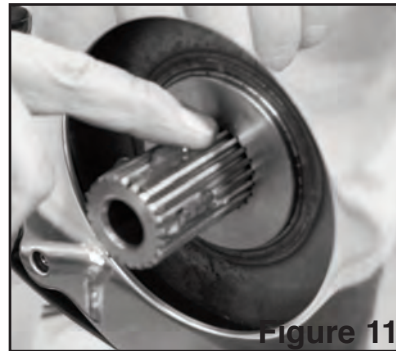


Figure 11

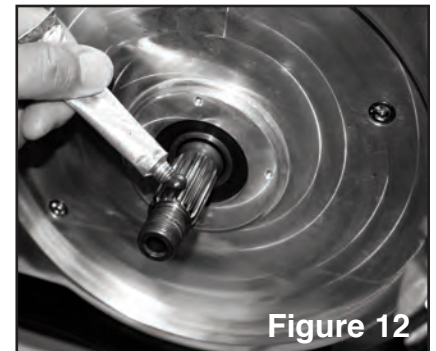


Figure 12

You are now ready to install the belt drive on the shafts. To make it a little easier to slide the clutch basket onto the mainshaft and the front pulley onto the sprocket shaft, we recommend applying a small amount of grease to the splines of both shafts. (See figure 11 & 12).

Prior to installing the rear pulley, removing the internal clutch components will make it easier. Remove the (4) clutch hub shoulder bolts, spring retainer, diaphragm spring and pressure plate. At this time you can also remove all the clutch steels & frictions to make it easier to install the drive. (See figure 13).

NOTE: If you remove the clutch plates, it is important to note the order in which they came out so that they can be re-installed in the exact same order.

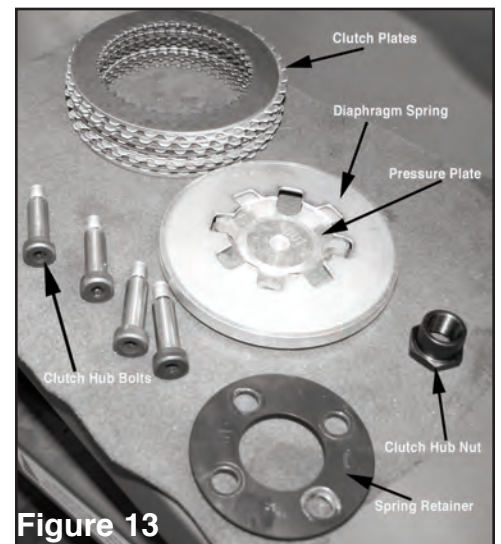


Figure 13



Figure 14

Remove the bolt & cup washer from the front pulley. See figure 14).

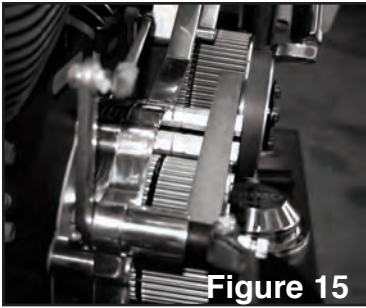


Figure 15

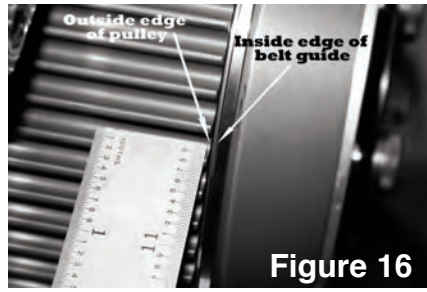


Figure 16

It's time to align the belt pulleys. Install the front & rear pulleys without the belt and tighten them down. Use a steel straight edge and place it on top of the pulley teeth. (See figure 15). The rear pulley guide has a slight shoulder, so you must be to the inside of that shoulder when aligning to the front pulley. (See fig. 16)

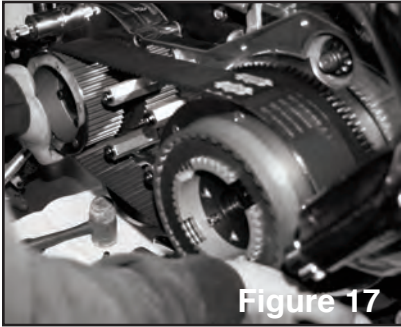


Figure 17

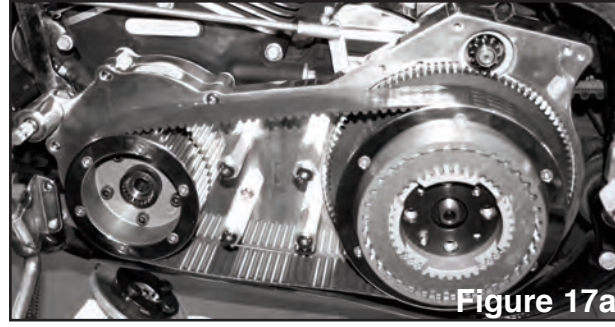


Figure 17a

Once the pulleys have been aligned, remove both pulleys.

Assemble the belt on the front & rear pulley and holding them as a unit, slide them onto the motor sprocket shaft and transmission mainshaft at the same time. (See figure 17). It may be necessary to work the pulleys a little bit at a time to walk them onto the shafts. (See figure 17a).

Put 4-5 drops of blue thread locker on front pulley bolt then insert the bolt and cup washer into the front pulley and torque to specs found in your OE manual.(See figure 18).

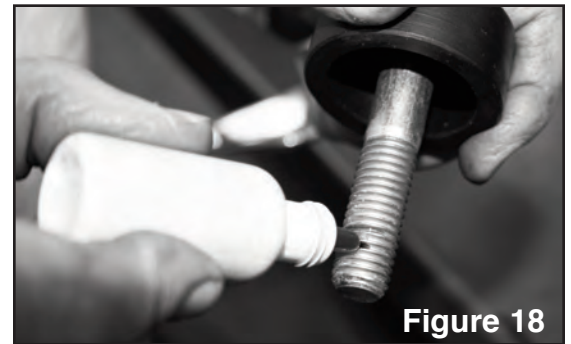


Figure 18

Put 2-3 drops of blue thread locker on the trans mainshaft, then thread the clutch hub nut onto the shaft. See figure 19).

NOTE: The clutch hub nut is left hand thread.

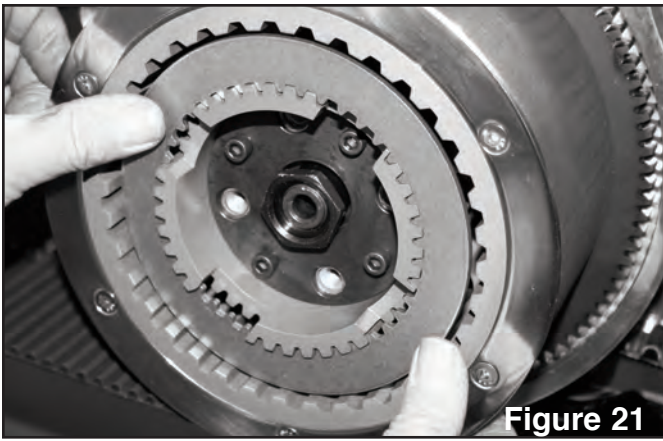


Figure 19

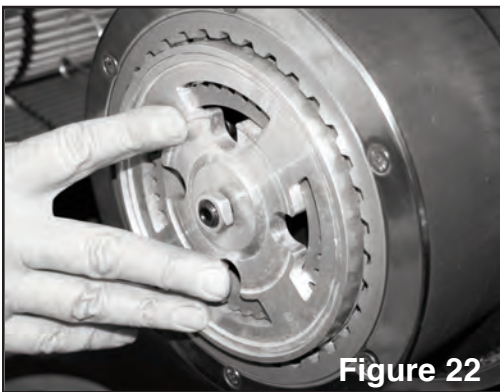
Holding the hub with Rivera's PC-3000 clutch hub holder tool, torque the left hand threaded clutch hub nut 80-90 ft. lbs. (See figure 20).



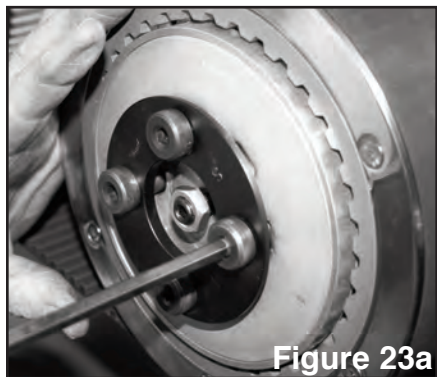
Figure 20



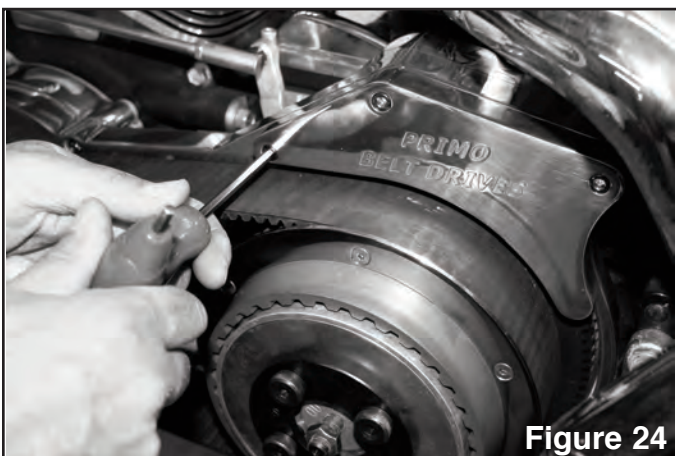
Assemble the clutch in the clutch shell by inserting the .120" steel drive plate first. (See figure 21) Follow that with a friction, then alternate the steels and the friction plates never having two steels together or two frictions together. End with a steel plate.



Install the pressure plate with the side stamped with the word 'OUT' facing away from the motorcycle. Now install the diaphragm spring and the spring retainer (The word 'OUT' stamped into the pressure plate faces away from the bike). (See figure 22).



Next, apply a few drops of blue thread-locker to the threads on the 4 spring retainer shoulder bolts (See figure 23) and then insert them through the spring retainer, spring and pressure plate threading them into the clutch hub. Tighten to 35-40 ft.lbs.. (See figure 23a).



Using the 3 supplied 1/4 - 20 x 1/2" SHCS, apply one drop each blue thread locker then secure starter gear cover to the motorplate. Torque these bolts to 15 ft. lbs. (See figure 24).

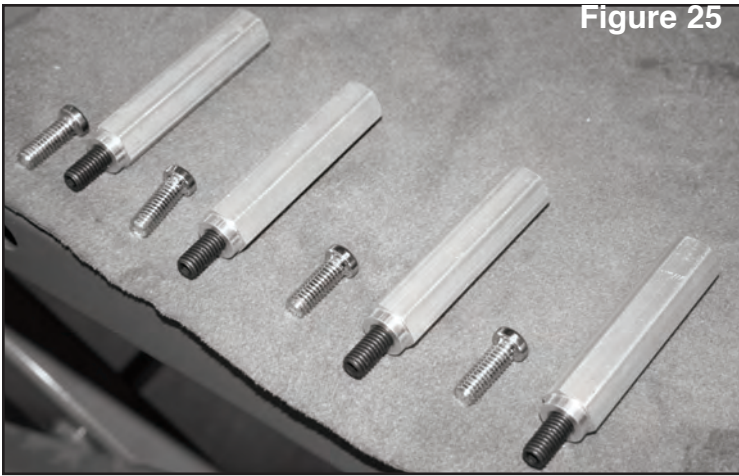


Figure 25

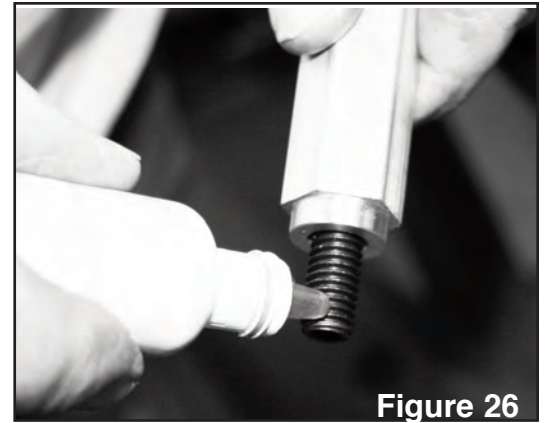


Figure 26

The outer guard stand-offs have the studs pre-installed. (See figure 25) Should the need arise to remove the studs from the stand-offs, be sure to re-install them with RED thread locker and there must be at least 5/8" of stud outside of the aluminum stand-off. (See figure 26).

To install the stand-offs, apply 2-3 drops of RED thread locker on each exposed threaded stud (See figure 26). Thread the stand-off into the motorplate until the base of the stand-off fits into the counter bore of the motorplate. Using a 3/4" socket, torque the stand-off to 40-42 ft. lbs. (See figure 27). Repeat for all four stand-offs.



Figure 27

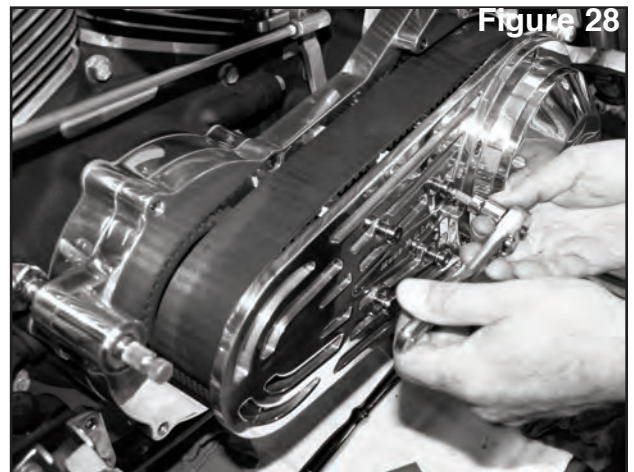


Figure 28

The derby cover for the outer guard will be pre-installed at the factory, however if the need arises you will need to install the derby cover onto outer guard with supplied (6) 12-24 X 1" SHCS after applying one drop of blue thread locker to each bolt. Place outer guard over the (4) stand-offs installed in motorplate and then thread the (4) low profile 3/8-16 X 1" SHCS through the outer guard into the stand-offs. Torque each of the (4) bolts to 28-32 ft. lbs. (See figure 28).



Re-install the heel toe shifter assembly and the floorboard making sure to follow OE torque specs. We recommend using blue thread-locker on all the fasteners. Finally, its time to adjust the clutch (removal of the outer guard derby will be necessary).

It is recommended to completely re-inspect all steps in this installation guide and on the bike to ensure proper installation. You can now re-install the battery, start the motorcycle and go for a test ride.

**Use the following steps to adjust your clutch:**

Turn the cable adjustment in until the clutch lever rests against the grip. Turn the center adjusting screw out and then turn the center screw in until the clutch lever just starts to move away from the grip, then turn the center screw out 1/4 of a turn and lock the center adjusting screw jam nut firmly against the pressure plate. Now adjust a black clutch cable so you have approx. 1/8" free play from the clutch cable ferrule to the clutch lever perch. On a braided cable you will have almost no free play.